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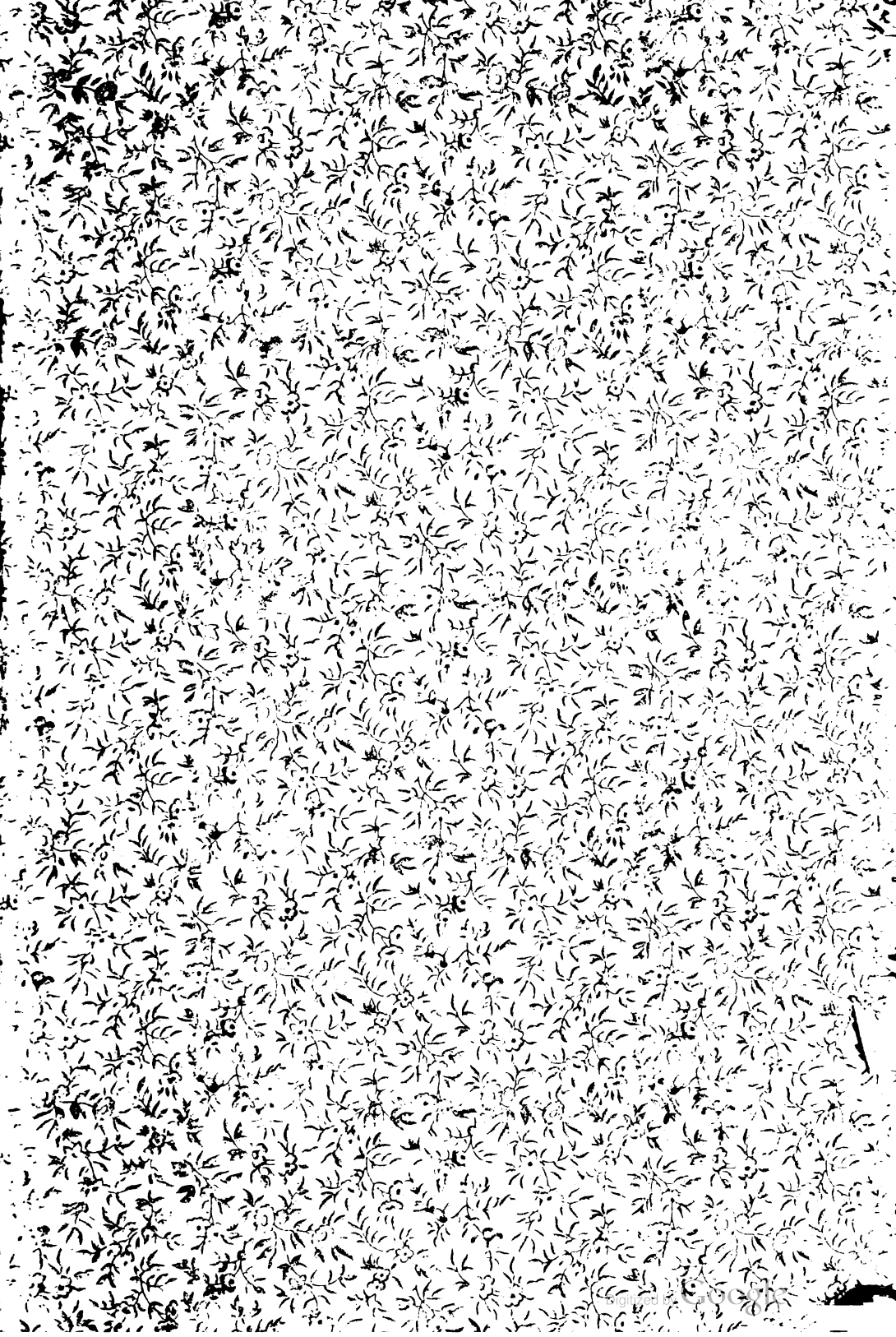

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TRANSACTIONS

OF THE

Michigan State Medical Society

FOR THE YEAR 1896.

VOLUME XX.

GRAND RAPIDS:
PUBLISHED BY THE SOCIETY.
1896.

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NOTICE.

The thirty-second annual meeting of the Society will be held at Grand Rapids the first week in May, 1897.

The American Medical Association will meet at Philadelphia, Pa., June 1st to 4th, inclusive, 1897.

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THIRTY-FIRST ANNUAL MEETING

OF THE

Michigan State Medical Society

HELD AT MT. CLEMENS,

June 4th and 5th, 1896.

ANNUAL ADDRESS OF THE PRESIDENT.

WILLIAM BEAUMONT AND HIS WORK.

VICTOR C. VAUGHAN, M. D.

Ann Arbor.

Fellow Members of the Michigan State Medical Society:

In our busy lives as practitioners of medicine and surgery, we too seldom think of those whose labors have placed certain departments of medicine among the exact sciences. The healing art had its origin in the priestly superstitions of primitive men. From what it then was to what it now is, medicine has been advanced by the patient labor and persistent toil of many men, who have devoted their lives searching for the truth. We are better able to cope with disease than were the medical priests of ancient Egypt, the astrologers of Chaldon and the theorists of two hundred years ago, because certain men have pursued the experimental study of physics, chemistry and biology with earnest purpose and well directed skill. It is my intention to devote the time allotted to this address, which your favor, well appreciated by its recipient, permits

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me to give, in calling your attention to one of our honored dead, and to his work which was of great service in the development of physiological knowledge. I have chosen for the subject of this paper, William Beaumont and his work. I have been induced to make this selection because, in the first place, his studies were begun in the then Territory of Michigan; secondly, American medical biographers have not, in my opinion, done the memory of this man justice; and thirdly, the fact that he accomplished so much under great difficulties may cheer some of us in carrying our burdens, which at times grow exceedingly heavy, and may lead some of our younger members to realize that it is the duty, as it should be the pleasure, of every medical man, however limited his facilities may be, to add something to the sum of that knowledge which surpasses all other, inasmuch as it is utilized in the saving of human lives.

William, the son of Samuel Beaumont, a New England farmer, was born at Lebanon, Connecticut, in 1785. I have been unable to find any record of the student life of the young man. However, that he was diligent in the persuit of knowledge is evidenced by the fact that soon after reaching his majority he became a school teacher at Champlain, Clinton County, N. Y. At the same time he began the study of Medicine, which he continued later under the direction of Dr. Benjamin Chandler, of St. Albans, Vt. There is no evidence, so far as I can find, that Beaumont ever attended a medical school. On December 2nd, 1812, he enlisted, as surgeon's mate, in the 16th Infantry, and was transferred to the 6th Infantry, June 6th, 1813.* A few months later the young medical assistant saw something of the wounds of war at the capture and destruction of York (now Toronto), where the retreating English exploded a magazine containing a hundred barrels of powder under the feet of the advancing Americans.

At the close of the war in 1815, Dr. Beaumont resigned his commission and began the practice of medicine at Plattsburg.

*In giving these data, I have two sources of information: (1) The records of the Surgeon General's office, kindly furnished me by Surgeon General Geo. M. Sternberg and Asst. Surgeon General Chas. Smart, to both of whom my best thanks are due: (2) "A Memoir of the late William Beaumont" by Thomas Reyburn, M. D., St. Louis Medical and Surgical Journal, 1854. There are several contradictions, all of minor importance, in these authorities. In such cases I have followed the official records from the Surgeon General's office.

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During his service as surgeon's mate he had won the esteem and friendship of Dr. Joseph Lovell, who in 1818 became the first Surgeon General of the U. S. Army. The first of Beaumont's letters on file in the Surgeon General's office is dated at Plattsburg, N. Y., Dec. 18th, 1818, and it expresses thanks for the offer of a thousand dollar clerkship in the office at Washington, which was at first accepted, but later declined. In 1820 Dr. Beaumont again entered the medical service of the army. This time he had the rank of Post-Surgeon, and was assigned to duty at Michillimackinac, (now Mackinac Island), where he reported to General Macomb in June.

Two years later, on June 6th, 1822, the accident which permanently opened the walls of the stomach of Alexis St. Martin, and enabled Beaumont to satisfactorily study gastric digestion, happened. The wound is described as follows: "The charge, consisting of powder and duck shot, was received in his left side, he being at a distance of not more than one yard from the muzzle of the gun. The contents entered posteriorly, and in an oblique direction, forward and inward, literally blowing off the integuments and muscles for several inches in circumference, fracturing and carrying away the anterior half of the sixth rib, fracturing the fifth, lacerating the lower portion of the left lobe of the lungs, as well as the diaphragm on the left side."

This wound was carefully treated by Dr. Beaumont, and finally, as is well known, it healed, leaving a permanent gastric fistula, which was ordinarily closed by a valvular flap of the mucous membrane. In May, 1825, nearly three years after the accident, the first experiments were made. In June of the same year Dr. Beaumont was ordered from Mackinac to Fort Niagara. He took St. Martin with him and continued the studies. In August the two visited Burlington and Plattsburg, and at the latter place the patient, doubtless feeling that he was now of more service to the doctor than the doctor was to him, departed without ceremony.

At Fort Niagara in June and July, 1825, there happened the events which led to the trial of Lieut. E. B. Griswold by court martial, in which Dr. Beaumont was the principal wit-

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ness. The most important charge against Lieut. Griswold was that he had attempted to shirk duty by falsely reporting himself sick. This charge was substantiated by the evidence of Dr. Beaumont. The court found Lieut. Griswold guilty, and sentence was passed in conformity with this finding. The President reversed the finding of the court, and in doing so took occasion to criticize the testimony of the surgeon. Dr. Beaumont replied, in a circular written tersely but with dignity, to the President's criticism, which may be found in General Order (No. 9) of Feb. 18th, 1726. I cannot forbear quoting one paragraph from Dr. Beaumont's circular Suspecting that Lieut. Griswold was feigning illness, he prescribed a mixture of 15 or 20 grains of calomel and 5 or 6 grains of tartar emetic. It seems that the Lieutenant, having been informed of the nature of the prescription, returned to duty in preference to taking the medicine. The doctor was criticized for this treatment, and to this criticism he replied as follows: "Whether the plan adopted, either in a moral or professional point of view, be justifiable or not, I leave for medical men and candid judges to decide; it was salutatory and had the intended effect of returning Lieut. Griswold to his duty without prejudice to his health or constitution; neither is it of very great moment with me whether a successful experiment be of *less* or *more* than doubtful propriety, that speedily returns a soldier from the *sick report* to the effective service of the government, be he *private*, *non-commissioned* or *commissioned officer*; neither do I think it of very great consequence whether it be done *secumdum artem*, *secumdum naturam* or *terrorem*, provided it be *well done*."

In May, 1826, Dr. Beaumont was transferred to Fort Howard, on Green Bay, and in 1828 to Fort Crawford, on the Upper Mississippi. During these years the doctor was constant in his endeavor to locate his truant patient. Finally he learned that St. Martin had become the possessor of a wife, and the father of two children, and was domiciled in lower Canada, nearly two thousand miles from Fort Crawford. At his own expense he induced agents of the American Fur Company to transport the family through this distance, and

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in August, 1829, after an interruption of four years, the experiments were again begun. The work was continued until the spring of 1831, when St. Martin and his family were allowed to go to lower Canada, with the promise that he would return when required. In August, 1832, Dr. Beaumont was granted a leave of absence; he proceeded to Plattsburg where he met St. Martin by agreement, and the time from November, 1832, to March, 1834, was spent in Washington in carrying on the experiments. In the fall of this year the first edition of "The Physiology of Digestion with Experiments on the Gastric Juice," was published.

Early in 1834 Dr. Beaumont was ordered to Jefferson Barracks, now St. Louis. He had but recently started for his new post when the Secretary of War, Louis Cass, received from Edward Everett the following petition, signed by more than two hundred members of Congress: "Being informed that Dr. Charles E. Jackson, an eminent chemist of Boston, is successfully prosecuting an analysis of the gastric fluid of Alexis St. Martin, the Canadian boy attached to Dr. Beaumont, Surgeon of the U. S. Army, and that the analysis cannot be satisfactorily accomplished without the presence of Dr. Beaumont and St. Martin; and regarding the case as furnishing a rare and fortunate opportunity of demonstrating important principles in physiology by which credit may be conferred on the medical science of our country, and important benefits acrue to humanity; also, understanding that several foreign national scientific bodies are anxious to draw St. Martin from this country, for the purpose of prosecuting the investigations now making by one of our countrymen, who is in every way competent to the work; and persuaded that the opportunity now afforded, if neglected, will be lost to our country forever, we request that the Hon. Secretary of War will station Dr. Beaumont at Boston, or in the vicinity, for the term of four months, or longer if necessary for the object."

The reply of the Secretary to this petition was as follows: "I should have considered it due to the very respectable signers of the recommendation to comply with their request in this instance, had I not ascertained that another engagement

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had been made by the Surgeon General, with the consent of Dr. Beaumont, which is more acceptable to him than the proposed measure of sending him to Boston. Before I received your letter he was on his route to St. Louis, the place of his destination, and under these circumstances I trust that you will accord with me in opinion that it is not advisable to change his station at present." Dr. Lovell, the Surgeon General, wrote on the back of this paper: "Dr. Beaumont already understands that he cannot conveniently be stationed at Boston, so he has stated that this application was made without his knowledge or desire. He has gone to his station without any desire to leave it at present."

It would seem from the petition and the answers that the former was drawn in the interests of Prof. Jackson, rather than at the request of Dr. Beaumont. However, the interest manifested by Hon. Edward Everett in this interesting work was intelligent and real. Dr. Beaumont had often expressed a desire to take St. Martin to Europe, where the best chemists and physiologists might utilize the opportunity for the study of gastric digestion to the fullest extent, and Mr. Everett introduced an amendment to the appropriation bill of 1834 calling for $10,000 for further experimentation, but the amendment was lost.

Dr. Beaumont reported his arrival at Jefferson Barracks July 1st, 1834, but one month later he asked to be relieved and sent to Fort Crawford, with permission to delay three months in changing stations. The leave was granted. He went to Plattsburg, but was soon ordered to return to Jefferson Barracks as a witness in a court martial. In 1835 he was made Purveyor of Medical Supplies for the Western Military District and Surgeon to the St. Louis Arsenal. Here his military duties were so light that he was permitted to open an office and give his attention to private practice. A fellow practitioner, Dr. Thomas Reyburn, says of Dr. Beaumont at this time: "His mature age and ripe experience, the reputation he had acquired in the army and by the publication of his work on the gastric juice, together with the fact that society was in large part composed of military men and their families,

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tended no doubt to give him that preeminence in the profession which few could contest with him on the score of superiority, skill and experience."

In 1837 Dr. Beaumont wrote to a friend in Washington, as follows: "I have no wish or intention of resigning my appointment in the army at present, though the professional encouragement I meet with here might seem sufficient inducement to do so, were avarice or professional fame the motive of my ambition. I have a very handsome, lucrative and respectable private practice, reputation far above my merits, and professional popularity more than commensurate with my best practical skill or abilities."

In March, 1839, he requested a leave of absence, and suggested a tour of inspection of the upper river and lake posts. These requests were not considered favorably by the War Department, and instead of their being granted Dr. Beaumont was ordered to proceed immediately to Florida for duty in the field. Against this order he remonstrated, pleading advanced age, length of service, and claiming that the order was contrary to the usual regulations. The order was repeated in most positive form, and was this time met by resignation. It might be remarked here, that the first Surgeon General, Dr. Joseph Lovell. who had greatly aided Beaumont by obtaining books on the subject of digestion for him, and by allowing him to change posts, and by granting short leaves of absence, when the experimental work could be benefited thereby, died October 17th, 1836, and it is altogether probable that the man who had so long been regarded as somewhat a favorite of the Surgeon General, should be made to feel the insults of those less honored, as soon as the highest authority passed into other hands.

Dr. Beaumont continued to practice medicine in St. Louis, favored by a large clientage, and honored and beloved by his fellow practitioners. One of the latter speaks of him as follows: "He was gifted with strong natural powers, which, working upon an extensive experience in life, resulted in a species of natural sagacity, which, as I suppose, was something peculiar in him, and not to be attained by any course

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of study. His temperament was ardent, but never got the better of his instructed and disciplined judgment; and whenever or however employed, he always adopted the most judicious means for attaining ends that were always honorable. In the sick room he was a model of patience and kindness, his intuitive perceptions, guiding a pure benevolence, never failed to inspire confidence, and thus he belonged to that class of physicians whose very presence affords nature a sensible relief."

During the cholera epidemic of 1849 Dr. Beaumont, then sixty-four years of age, devoted his days and nights to the most arduous professional duties which fall at such times upon one known to be possessed of sound judgment, ripened by experience and approved by success.

In March, 1853, he fell in descending the steps of a house to which he had been called professionally. At first but little importance was attached to his injuries, but later a carbuncle appeared on the back of his neck, and he died on the 25th of April.

I have now finished my brief sketch of the life of Dr. Beaumont, and I desire to make some comments upon his work. In undertaking this part of my theme, I desire, in the first place, to call attention to the clear, unequivocal style in which Dr. Beaumont wrote. As I have already stated, I have been unable to give any definite information concerning the extent and character of his education, but his little book on "Digestion" should now be considered as a classic. His writings show that he possessed the following qualifications which should belong to every man who attempts scientific research: (1) He knew what others before him had done in the same line of work. He was thoroughly familiar with the important literature of the subject. When we recall the fact that he was only an Assistant Surgeon stationed at an isolated post in the then wilderness of the Territory of Michigan, we must admit that it required energy and zeal for him to obtain and familiarize himself with the works of Spallanzani, Magandie, Tiedmann and Gmelin, Leuret, Lassaigne, Carminiti, Viridet, Werner, Hunter, Marquart and Vanquelin, Montegre, Prout,

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Broussais, and others. That he did acquaint himself thoroughly with the writings of these authors is shown in his book, and is conclusive proof that he was a student, earnest and intelligent in his labors. (2) His experiments were made in the simplest and most natural way possible. He did not forget, as too many experimentors do, that conclusions are worthless when the observations are made under artificial and unnatural conditions. No better example of the inutility of experimentation under abnormal conditions need be offered than that furnished by the work of Montegre, who could vomit at will, and who chose to vomit during the intervals of digestion. From the examination of the fluid thus obtained from the stomach Montegre concluded that what had been supposed to be gastric juice is, in fact, nothing but saliva; that the principal use of the gastric juice is to dilute the food; and that the only action of the stomach is "une absorption vitale et elective." Beaumont saw the fallacy of these conclusions, and demonstrated that the gastric juice is secreted only when the walls of the stomach are stimulated by the presence of food. (3) His experiments are recorded in the simplest terms, and his conclusions are never forced but necessarily follow from the observations. Take, for instance, his conclusion that the gastric juice contains free muriatic acid and some other active *chemical* principle. He easily ascertained that the fluid was acid, and Dunglison and Emmett demonstrated for him the presence of free hydrochloric acid; but his observations led him to conclude that, in addition to the free acid, some other active chemical agent was present. He did not weaken the value of his work by theories as to the nature of the other chemical substance, and the discovery of pepsin remained to be worked out by the researches of Schwann, and to be confirmed by Wasmann.

There are at least two early experimental works on digestion which every student of physiology should read. These are the works of Spallanzani and Beaumont.

It is, I think, quite generally supposed that Beaumont's good fortune as an investigator was solely dependent upon what we must regard as the fortunate accident to St. Martin. This

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is partially true. Had the accident never happened, Beaumont could not have rendered the great service to physiology and to medicine that he did render, but proper credit should be given him. St. Martin's was not the first case of permanent gastric fistula in man. On this point Dr. Reyburn makes the following statement: "In order to estimate properly the professional zeal and enthusiasm of Dr. Beaumont, we must remember the untoward circumstances under which he struggled in the case of St. Martin, and compare his labors and its results with those of similar cases presented to the observation of physiologists in Europe. Burrows, in the fourth volume of the Transactions of the Royal Irish Academy, relates a case of fistulous opening into the stomach, and a similar case is noted by Schenkien. Louis refers to other cases which occurred to Foubert and Covillard. Helm, of Vienna, publishes another case, and one other occurred at La Charite in Paris. To what important scientific uses were these cases applied? What experiments are recorded in connection with them? What fact observed in them has been referred to by physiologists, to decide the nature and laws of the animal functions? With the exception of some brief references made by authorities to a few experiments connected with the case at La Charite, science can draw no deduction and derived no benefit from them. It was left to the unpretending genius of the Army Surgeon of isolated frontier military posts to turn to its scientific uses a case more important than which has never been presented to the searching eyes of the medical philosopher. To his zeal and ambition, to his sacrifices, to his patient perseverance and research, is due a boon to science, to which even Europe, when the opportunity presented itself, advanced no claims."

I have already made mention of the fact that Dr. Beaumont desired to carry St. Martin to Europe in order that the most renowned physiologists and chemists might see and study this case. This illustrates the broad views that Dr. Beaumont had. He was not working simply for personal fame, but he desired that the greatest benefit might be secured from the case under his charge. Not being able to take his patient to

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Europe, he wrote and sent samples of the gastric juice to several scientists. He was very desirous that a complete and accurate analysis of the fluid should be made. One European chemist to whom some of the gastric juice had been sent wrote as follows : " Animal analysis is the most difficult department of chemistry, and there are not now living many chemists who could perform a complete analysis of the gastric juice. Alexis Thenard in France, Prout in England, and Berzelins in Sweden are the best analysts we have in this department, and I advise you to send specimens of the juice to them." Dr. Beaumont did attempt to send a sample of the gastric juice to Berzelins. The package, accompanied by a history of the case of St. Martin, was entrusted to the captain of an American vessel sailing for northern Europe, with instructions that it be left with the quarantine officer at Gottenberg, with the request that it be forwarded to Berzelins at Stockholm, but the package never reached its destination. However, it is not probable that the great Swedish chemist could have done more in the way of a satisfactory analysis than was done by Prof. Duglison and Emmett at the University of Virginia. These gentlemen distilled the fluid, and demonstrated the presence of free hydrochloric acid in the distillate. This had previously been done by Prout, working with the contents of the stomach of dogs killed during digestion, but the analysis of Dunglison and Emmett was made upon the juice obtained by the mechanical irritation of the walls of the stomach, and, notwithstanding the subsequent criticism of Lehmann that the free hydrochloric acid found in the distillate was due to the decomposition of chlorides by lactic acid, which he held to be the normal acid of the juice, the results of the American chemists have proved to be correct.

In order to properly estimate the value of Beaumont's work, it will be necessary to give a brief resume of the history of the views held by scientific men concerning gastric digestion. In doing this we will not go back further than the middle of the eighteenth century, when the experimental study of the subject was begun by Reamur, who caused a tame buzzard to swallow metallic tubes closed at one end and covered with

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muslin at the other end and filled with food. When these tubes were regurgitated by the bird, it was found that the enclosed food was, to a greater or less extent, dissolved. This disposed of the theory previously held, that the stomach effected solution solely by a process of grinding. In 1777 Dr. Stevens, of Edinburgh, availed himself of the services of a man who was accustomed to amuse the people and gather a few pennies by swallowing bits of stone. Stevens prepared small silver balls made in halves, fastened together with a screw, and perforated by minute holes. These were filled with different articles of food, and swallowed by the performer. When these balls were evacuated, their contents were found to be digested and often had disappeared altogether. These experiments supplied additional evidence against the mechanical theory, since the food enclosed in the silver balls was protected against the grinding action of the walls of the stomach.

The brilliant Abbe Spallanzani who, by the way, is said to have received his enthusiasm for scientific research from the celebrated woman professor Laura Bassi, of Bologna, wrote his celebrated and valuable dissertations on digestion during the last quarter of the eighteenth century. These writings consist of the records of numerous experiments, the atrocities of which the antivivisectionists of to-day would take great pleasure in detailing. He repeated, multiplied and varied the investigations of Reamur. He obtained gastric juice by causing animals to swallow bits of sponge attached to strings by which the sponge was withdrawn at pleasure. The fluid thus obtained was mixed with food, and the mixture carried in the arm pit until the food was digested. He recognized the acidity of the gastric secretion, but made no attempt to ascertain the nature of the acid.

Beaumont comes next in the list of those who studied the gastric juice taken from the stomach during life, and was the first to make researches on the gastric secretions of man.

He accurately described the appearance of the mucous membrane of the stomach in health and disease, during fasting and in digestion. He studied and recorded very clearly

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the movements of the stomach from the moment of the reception of the food until the last bit passed through the pylorus. He showed that the flow of the fluid is intermittent, and occurs only when the walls of the stomach are stimulated by the presence of food, and that during the hours of fasting the stomach contains only a small amount of mucus which is neutral or feebly alkaline in reaction. He demonstrated that contrary to the teaching of Magandie bile does not normally flow into the stomach. He studied the relative effects of the gastric juice on different kinds of food, and made records of the comparative digestibility of different foods, and did this so accurately that his results are now utilized by us in selecting the diet of our patients. He made such an exact study of the physical and chemical natures of the gastric juice that, with the exception of the discovery of pepsin, the closest research of modern times has added but little to the work done by him.

Every physician who prescribes for digestive disorders, and every patient who is benefited by such a prescription, owes gratitude to the memory of William Beaumont, who, in 1825, on the island of Mackinaw, began his studies of digestion, which he pursued with great labor and skill for the benefit of mankind.

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ANNUAL ADDRESS ON MEDICINE.

PHYSICAL DIAGNOSIS AND MODERN THEREPEUTICS.

HERBERT MAXON KING,
Grand Rapids.

Mr. President, Ladies and Gentlemen :

What the age of Pericles was in art, the latter half of the nineteenth century will descend to posterity as its analogy in science.

We of to-day, satiated with marvelous achievements and surrounded by their many results, living besides under the tremendous pressure of the severe practicality of the age, cannot comprehend the evolving influence which such a condition of things as has existed for the past fifty years is bound to exercise over the destiny of the race.

As physicians, it is the physiological aspect of an influence which most interests us rather than the social or metaphysical, and it is the effect of this gigantic stride upon the human economy in its relation to disease, therefore, which particularly demands the attention of the student of medicine of to-day.

While of course less apparent to the casual observer, the advancing changes in the practice of medicine are no less positive and no less demonstrable than are those in other branches of science, and no observing student but realizes that what but a few decades ago was an arbitrary and empirical art is rapidly rising to the distinction of an exact science;

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and never was this change so rapidly taking place as at the present time.

This is at once seen in the growing demand of the profession for demonstrable facts. Theories and hypotheses, however beautifully clothed in rhetoric and oratory, no longer excite interest or even more than passing comment, while the blunt, ungarnished demonstration of even the simplest truth brings applause from the whole medical world. This desire for facts, for logical deductions and exact demonstrations is the key-note in the tendency of the age in medicine as in all other branches of science, and the finality of such a tendency is inevitable.

This is certainly as it should be. For ages prior to the modern revolution in science, medicine has gone hand in hand, almost, with necromancy. The agents employed by the physician were often as little understood by himself as by his patient, and their potency quite as mysterious. Taken from the border land of the mystical, and reduced to service by empirical choice, their employment was as little scientific as logical. The rational between cause and effect was never considered, and if so was invariably abandoned as one of nature's hidden mysteries, and it has only been the irresistible pressure of the times which has forced to light the first few fundamental principles which under lie the practice of medicine as a science—the few principles upon which the whole fabric of our future practice is to be built.

In times not so very far remote it was sufficient to *name* the condition which now we require *defined.* Moreover *then* this condition was assumed from a symptom or a combination of symptoms almost entirely subjective. Now, on the other hand, we require that the assumed condition be substantiated by physical evidence, and are growing more and more exacting in our demands for logical reasoning from the physical evidence to the assumed condition.

To be sure, subjective symptoms have their place (and an important place) in our present scheme of diagnosis; but that place is secondary and far subordinate to the more reliable physical signs to which we look in the main to prove our

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theories and conjectures. Physical diagnosis therefore marks the point of highest development in the practice of medicine of the present day.

The ambiguity of terms which before was so essential to the physician in his establishment of confidence among his patients is now most heartily deprecated by his colleagues as well as by his patients themselves, and this is further evidence of the change for the better in our educational methods, where logic and common sense have made subterfuge unnecessary to the successful handling of the sick.

The starting point of modern methods of diagnosis was no doubt an innovation, much criticised and with reluctance accepted per-force. It displaced tradition and very soon rendered valueless (except as curiosities) many a text-book of medicine; but as it gained ground and its immense value became recognized among students it required no missionary efforts to induce men who loved exactness to avail themselves of the benefit of its employment, until now nearly every principle in physics finds its adaptation either in the diagnosis or the treatment of disease. It Is not very long ago that diagnosis meant merely the determination of the nature of disease, to measure with accuracy the degree to which it had advanced, and to be able to specify that measurement mathematically was another step toward the perfection of our modern scheme.

It is no longer sufficient to discover anæmia in a given case; modern knowledge of pathology requires that we determine by actual count its extent, as well as, by microscopical appearance, its particular nature. When Lister gave to surgery the results of his blind but invaluable experiments in antisepsis he gave to medicine the suggestions which, when followed out by the modern school of inductive reasoning, have led to an entirely new factor in pathology, and accordingly another means at hand in diagnosis.

Probably no single branch in medicine has been given more industrious research or assiduous study than bacteriology, and the futile attempts from time to time to overthrow its relation to pathology have only strengthened its position, until now it is

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brought into the service of *every* scientific medical man for the purpose of verifying diagnosis.

Again, urinalysis has developed from the crude suggestions and observations of John Bright into a means which we have come to regard as indispensible in our estimation of a physical condition.

We draw on mechanical principles, understood since the days of Archimedes but only within the last decade applied to medicine, for the means to establish the nature and determine the extent of a pathological condition. No physician but realizes and appreciates the diagnostic value of sphygmographic tracings, for instance, as applied to disease in general and to lesions in the arterial wall in particular; or the stethescope in its manifold application; or the lens as applied by the ophthalmologist; or the various paraphenalia in laryngoscopy; to say nothing of those invaluable diagnostic agents, the microscope, spectroscope, hæmometer, cytometer, centrifuge, and many others, all formed upon the simplest principles in physics, yet the names of many of which were meaningless a quarter of a century ago. No sooner is a new application of a principle discovered than the medical world is at once alive to the possibility of adapting it to some use in medicine, and it is worthy of comment, as indicating the tendency of modern medicine, that the very first efforts in this direction are on the lines of diagnosis. A living example of this tendency is notably the efforts, already partially successful, toward applying the ubiquitous X-rays of Roentgen to diagnostic uses.

A concise, logical and scientific diagnosis, in short, is the first and foremost consideration of the physician of to-day, and upon such foundation is reared th fame of the 19th century clinician.

Now running parallel with these advances and improvements in our methods of physical diagnosis and but a step behind comes the inevitable consequence of these enforced changes in our conceptions of pathology. Modern therapeutics must of necessity conform to advanced ideas of pathological conditions, and so it does, for while our pharmacology gathers but slowly really *new* materia medica, it is daily

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changing the application of old therapeutic agents and readapting them to the necessities to which our increasing enlightenment gives rise.

These readaptations also are on the lines of exactness; the old custom of employing therapeutic agents because the results obtained *seemed* to be favorable has been for some time and certainly is now falling more and more into disuse. No one to-day is justified in introducing to the profession a therapeutic measure unless he is prepared to defend its employment by a clear and logical explanation of its physiological action, or at least of demonstrating, to a degree of exactness, by repeated experimentation just what that physiological action is.

Positive therapeutics is therefore the natural outgrowth of exact diagnosis; the latter is certainly essential to it; but it is no less the perfection of suggestions offered by the empirical practice of our less scientific but no less zealous predecessors in medicine. Those agents which were intuitively discovered and arbitrarily employed are today fast being reduced to the fundamental principles of practice, and in the process of their modern adaptation scientific reasoning and philosophic conclusions form the basis.

The serum therapy of the present day offers perhaps the most beautiful illustration of this fact. We know by repeated experimentation that we can accomplish by certain means in an animal an immunity to a certain disease. We find by the same process of experiment that the active principle of this immunity lies in the blood; by deduction we know (what experiment again proves) that this blood when introduced into the circulation of another produces immunity to the specific disease in the latter.

Only one element in this process is lacking to make it entirely satisfactory to the scientific mind, namely, the specific principle of its potency and the rationale of its action; and toward the elucidation of this missing factor scientific men throughout the world are struggling.

Yet serum therapy in itself is not of 19th century origin; only the scientific application with any attempt at logical ex-

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planation is peculiar to our age. The blood of certain animals cunningly selected was crudely employed in the treatment of disease by the empirical practitioners of the middle ages. From a work on "Family Medicine" published in the Netherlands in the early part of the present century is translated the following, which in its turn was abstracted from the work of Nuns of the 15th century. The title of the work is "Solace for the Sick;" it contains a compilation (by Nuns) of sundry ancient receipts employed in the healing art of mediæval times. Under the heading "Epilepsy and Convulsions" it says: "For epilepsy and fits in children, the blood of rats and cats taken warm from the veins in half teaspoonful doses, after the patient comes out of the paroxysm, probatum." This is not serum therapy as we understand it to-day, but it certainly shows that even in times remote there was a groping for natural and physiological therapeutic agents wherewith to combat disease.

With little or no idea of pathology, the sense of intuition, has of necessity to take the place of logical deduction. No doubt the question of psychologic impression figured not a little in the selection of agents; but, be that as it may, these glimmerings of truth accidentally or intuitively discovered marked the dawn of progress toward scientific practice.

It is not a matter of a day or a year to overcome the traditional prejudices of our profession, even when, as of late it often happens, these prejudices are the stumbling blocks to progress. The modern therapeutist meets them in opposition constantly, and while it is humiliating to the scientist to be successfully opposed by an illogical and old time prejudice it is really to the best interests of science that it is so; it does much to prevent that radicalism which is so undesirable in experimental investigation, and makes the final ground so much more tenable when gained.

In this severe age *discrimination* in therapeutics is demanded of the clinician; he must in the first place be a diagnostician, but almost if not quite as essential he must be a modern therapeutist as well. Be he never so conservative the pressure of the times is bound to force him to a constant

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alteration of views and accordingly a constant change in practice.

That there is nothing astonishingly new in the citation of all this, which no doubt has at one time or another occurred to the mind of every physician here, is at once admitted; but there are suggestions and deductions to be drawn from a thorough contemplation of the condition of science today which it seems to me would, if conscientiously applied, inure materially and practically to the benefit of our profession. We are still remote from the ideal, the millennium, so to speak, in medicine. We have taken only the first step in the right direction, and that which remains to be accomplished will no doubt furnish ample field for the display of talent and the encouragement of ambition for centuries to come. But the duty devolving upon ourselves collectively and individually is no less patent and no less urgent for all that.

There are certain changes for the better which we can in our own day accomplish, and to do which we certainly ought to make the strongest effort. Medical nomenclature, for instance, is still in a chaotic state of indefiniteness, not so bad as it has been, to be sure, but still far from that which we might wish it. In the correction of this unfortunate condition every medical man who writes should have it constantly in mind. A great part of the confusion on the witness stand and in similar situations which so often places the physician in an embarrassing and ridiculous light is directly traceable to this lack of accuracy in medical terms. Ambiguity in this matter of nomenclature should be studiously avoided and we will do much in that alone toward furthering exactitude in medicine.

Again—In our practice, whether it be in public, clinic or private office, it is the duty of every physician not only to exercise to the fullest capacity his powers of observation, but to record clearly, concisely and understandingly his observations and deductions therefrom, always shunning the alluring flights of imagination, and religiously remaining within the prosaic confines of logic.

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In diagnosis we can no longer recognize intuition; the practitioner should, in doubtful cases exhaust every means at hand (and they are legion,) before venturing his reputation on a chance opinion which is at once dangerous and unscientific. True conservatism of opinion is highly desirable, but let us not carry that conservatism to the point of failing to employ those aids to diagnosis which modern science is constantly placing at our disposal. Nor is it much less than criminal to neglect the educational advantages which modern methods offer to every student of medicine. It should be no excuse for a practitioner, in the event of a mistake, that he lacked the means or the time for exhaustive diagnosis or scientific meditation. Transportation is neither difficult nor expensive, and both able counsel and modern facilities are always at hand.

In conclusion let us plead for a higher standard in current medical literature. This advance cannot emanate from our editors, it must come from our efforts as individuals. The greater part, by far, of the medical journal of today is filled with material carelessly and unscientifically prepared and prematurely forced into print. It is deplorable that in this day and generation we are obliged to search so diligently for journalistic articles which it is not a waste of time for the practitioner to peruse. This fault, at least, we can obviate by being less prolific and more scientific in our literary productions. That of which the medical world of today stands most in need and which it most emphatically demands is the ellucidation of logical deductions made from actual observations and experiments, and not the vague theories and dreamy hypotheses of a vivid imagination.

Therefore in the preparation of our papers and in the discussions which follow, which make up the vital principle of our advance in science and exactitude, let us be explicit, logical, brief and practical. Wandering off into abstruce theories can nevermore serve our purpose as scientists, although painted in all the roseate colors of beautiful figures of speech and gilded with oratorical delivery. Unless the meat in the nut is tangible, unless our deductions are logical and

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our conclusions founded upon demonstrable facts, the energy and time of preparation are wasted, and in this "Fin de siecle" epoch neither the individual nor the collective body can afford the extravagant waste of energy which careless and useless labor involves.

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ANNUAL ADDRESS ON SURGERY.

THE DOCTOR'S HOBBY HORSE.

C. H. BAKER, M. D.,
Bay City.

Mr. President, Ladies and Gentlemen :

I sing of arms and a man said Virgil in the old days, but in these piping times of peace we sing of a man and a horse. In past decades every medical oration told of the glories, honors and achievements of the man ; let us therefore devote a few minutes to a eulogy of his hobby horse.

There are hobby horses of various breeds; scrubs and thoroughbreds, colts and boneyard candidates, and astride of one a man to the average beholder resembles nothing so much as a long legged Texan mounted on a broncho, but to the man himself the animal has all the goodly proportions, slick hide and padded ribs of Don Quixote's Rosinante. No man ever grows so old he cannot bestride the animal; in fact, the older he grows the oftener he is apt to mount, and none so young he cannot find at least a serviceable little pony hobby. No man's dignity is hurt by hobby horsey associations, and none so weighty the little animal cannot carry him.

Once a man has a hobby horse he is apt to ride in season and out, and having found a comfortable mount the discoverer at once vaults into the saddle and feeding a liberal diet of reprints, drug house journals and testimonial literature rides him rough shod into our midst with such a clatter of hoofs and throwing so much dust into our eyes as to often

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blind us to the reality concerning his merits, long after he is wind broken and foundered.

Periodically some exploded theory, forgotten fashion, lost art or foolish fad is revived and heralded to the world as something new under the sun. Medical history as such is not taught as a separate branch of knowledge, and in consequence every man who studies medicine in its past relations must act as his own historian and with infinite pains dig out of the dust of ages the few wheat grains that have escaped the dry rot of disuse. Thus it happens that few of the men of active brain who devise new plans of treatment, new instruments or new theories are aware that they have been anticipated often hundreds of years. Should therefore our efforts at invention cease? Heaven forbid!

Cocaine, that boon to modern oculists, had been known and its effects noted almost forty years ago, but it was reserved to Koller to revive that knowledge, and by conferring immeasurable benefits on suffering humanity to achieve immortal fame. The great majority of men in our profession either because they are fully occupied in the struggle for bread, from the lack of necessary scientific training, or from native indifference and indolence never make an independent discovery or originate anything of general value to the profession. Of the minority who do, a considerable percentage have not the wide general information which teaches them whether the discovery is really such, or is likely to prove of permanent benefit.

A small minority have the qualifications and reputation which give their utterances authority and weight. How disastrous then are the results when such a man promulgates an incomplete theory, or an imperfect or even harmful treatment, or exploits the beautiful results of some new operation which the merest tyro can perform.

Periodically a wave sweeps the medical world as the tides follow the moon, and we all become lunatics in our mad haste to be the first to try the new treatment or publish a series of cases of the new operation.

Has any person in this presence ever inflated a poor consumptive to bursting with Burgeon's Sulphuretted hydrogen

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gas for the purpose of driving the bacilli in disgust out doors for a breath of fresh air?

How many of you have stored in your attics or sent to the junk dealer a pneumatic cabinet in which you buried so many hopes and hard earned dollars?

Has any one here removed a hand breadth of bone from the prematurely ossified skull to leave room for an idiotic brain to grow? Do you know any woman who has been needlessly sacrificed on the altar of Battey's operation, or is going about guyed up by a shortened round ligament like a boy lifting himself over the fence by his suspenders?

Does any one think a certain distinguished eastern neurologist owes his lengthening years to the proddings of the hypodermic syringe loaded with juices of a reproductive gland, or that his mellow ripening is due to the lamblike character thus artificially infused?

This animal extract was to be a new fountain of youth; and yet is not its distinguished French advocate very dead, and have not its many cured relapsed again into their hopeless chronicity?

Did any of you ever raise the hopes of a victim of dread consumption with the promise of speedy and certain cure with Koch's lymph, only to send him like Sisiphus rolling his eternal stone back to the black bottom depths of despair, to start upward again in his weary search for health. Heaven help us should the latest candidates for honors fail us, and antitoxine, Haffkine's anticholerine or nuclein go the way of their predecessors.

Our Materia Medica is being flooded with new compounds only a few of which have more than a temporary popularity. Fifteen years ago we gave pounds of quinine where now we give grains, and who to-day would think of hundred grain doses of quinine as his first resource in reduction of high temperatures. Rather would he resort to the pack and the coal tar products and succeed ten times to one where before he succeeded one time in ten.

He who rides a hobby is often called a crank until his skillful horsemanship and the merits of the horse have become

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generally recognized, when he is honored and feted and hailed as worthy of a place among the great ones of earth.

Hobby horse riding is often dangerous to a man's peace of mind or even to his life. What torrents of abuse fell on the head of Morton the discoverer of ether anæsthesia, and when his madness was shown to have method how others tried to rob him of the honor of discovery. Ephraim McDowell believed in his hobby horse, else what sustained him in doing the first operation for abdominal tumor, with his house surrounded by a mob eager to hang him, and pledged to surrender to the sheriff in case the patient died. Marion Sims believed in his hobby horse, so did Lister and Jenner, and as a result came modern gynecology and aseptic surgery and serum therapeusis.

The great advances of modern medicine come from the hobby riders, and the great medical army owes more of its brilliant victories and its rapid conquests to its cavalry than its infantry.

Why have the past fifteen years been so much more prolific in fads and failures than the previous decades had been? Simply because the brains of medical men are driving at higher pressure than ever before. Under the stimulus of competition we are crowding on steam pound by pound, some are throwing alcohol into the furnaces and here and there is seen a man with safety valve weighted and throttle wide open rushing straight forward to collapse and destruction.

No man's duty requires that he shall outrage nature, and by lost sleep, irregular meals and haphazard living shorten the years of his usefulness by a single day. It is notorious that physicians are the shortest lived people of any profession or business not called extra hazardous.

Shall we not each and all call a halt and, if we do not yet own one, possess ourselves of a hobby horse and with frequent ambles refresh ourselves and give our exhausted bodies and brains a chance to recover a little lost energy. What hobby shall we ride? The number of hobbies from which to choose is enormous and covers almost the entire domain of human activities. The average physician is so adaptable that he can

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make almost any hobby horse go a little, albeit there may be an occasional bucking match in which the man may go to grass. Not all of us can write poetry so acceptably as Dr. Holmes, or readable novels like Weir Mitchell, and could we do so we might be tempted to drop the spatula for the pen like Conan Doyle. Art and music will attract many devotees, and occasionally we see one of our number thrown in the arena by his notoriously balky political hobby horse.

Then there is that other horse with shoes of rubber, feet of wood and ribs of steel, fleeter than the horse of flesh, still as the summer breeze, that carries a man into good temper, happiness and health, throws care to the wind and quickly lands us at the long sought fountain of youth—when it does not land us somewhere else.

Choose a hobby that is independent of the weather, or one which, useful in the dreary days, grows better as the sun rides higher. The gun and rod have pleasures that send the blood tingling to the finger tips, and when combined with oar or sail one's fountain of joy fills faster than his cup can draw it off.

Is yet the poet born who shall fitly sing the glories of the camera? No alchemist of old hidden in his secret cave ever brought out such wonders and beauties as come from the ruby lighted dark room; no picture of memory so vivid as those we capture on our yearly outings, and no angler's rod ere took such mammoth fish as does his little kodak. The humane seeker for novelty now shoots the wary deer or fierce mountain lion with a lens and dry plate instead of gun and leaden ball. Our friend is taken in animated discussion with himself over a game of cards, he is decapitated, or puts his head upon the shoulders of some strange animal, and we are even now in the shadow of a great discovery which may make our hidden thoughts as readable as our printed books.

Each man will choose a hobby in accord with some bent of his mind, and singularly enough the hobby horse is so fascinating when well broken that the rider often thinks he is best fitted for fame when so mounted instead of when laboring in the channels of his chosen profession.

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Would our genial poet surgeon Graves be more famous had he devoted his chief energies to poesy, or should we have another Deguerre had our distinguished Dr. Connor made a business instead of a holiday with his little kodak. Our hobby makes us better and more useful men, more successful physicians and more brilliant surgeons. Do you love Johnston less because his hobby canters within the walls of a medical library, or Manton or Walker less because one loves to cultivate the embryo and the other to capture the mature denizen of the rippling trout brook. The socialistic amble of our beloved Inglis has not less endeared him to us all, and the frequent canters of our broad shouldered Smith in foreign lands have widened his horizon and made him cosmopolitan. So whether we fish or shoot, paint, draw, or press the button; whether we herbalize, mineralize, generalize or specialize, let us paraphrase the old song and

Wait for the hobby
The respectable old hobby
The health bringing hobby
And we'll all take a ride.

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ANNUAL ADDRESS ON GYNECOLOGY.

THE PREVENTION OF PELVIC DISEASE.

REUBEN PETERSON,
Grand Rapids.

Mr. President and Members of the Society :

For some years past the greater share of the time of those who have given their attention to the diseases of women has been devoted to the development of more strictly surgical problems. That the greatest good has resulted from these investigations no unprejudiced mind will attempt to deny. As Americans we can be justly proud of the surgical discoveries and achievements of our gynecologists, by means of which thousands of women in our land have been saved, or have been rescued from lives of invalidism. Nor is it to be wondered at that surgical abuses should have crept in with the discovery that by attention paid to the laws of asepsis the peritoneal cavity could be invaded with impunity. The performance of unnecessary operations, the removal of organs that might have been saved, are but incidents in the mighty advance which has been made. The evils resulting from the surgical attempts of those whose preliminary training was insufficient have been more than counterbalanced by the good resulting from the knowledge placed at the disposal of every practitioner, no matter how remote from the center of learning he may be situated. At the present time it is extremely popular to sneer at gynecology and, making much of its errors, to forget the debt the profession owe the tireless workers in this department. Modern pelvic pathology has been placed

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upon a firm basis only by the multiplicity of abdominal sections, the frequency of which is so deplored by some. The mistakes made by the pioneer surgeons have been recognized and profited by, and to-day we are entering upon a new era of gynecology and abdominal surgery. Pelvic pathology and surgery now go hand in hand and true conservatism is the order of the day.

It is but a natural step to the higher realm of preventive medicine as applied to the diseases of women. It is a subject which has been long neglected. In the midst of scores of papers upon surgical technique has appeared now and then one which mildly urged that many of the diseases curable only by surgical interference could have been prevented had suitable means been instituted at the proper time. But these efforts have for the most part been unheeded.

The cause and prevention of pelvic disease is a subject of interest both to the gynecologist and the general practitioner. The former from the abundance of material at his command is in the best position to study cause and effect in their relation to diseases coming under his specialty. It is to him we look for the application of the discoveries of modern physiology, hygiene and bacteriology to the prevention of pelvic troubles. But the carrying out of these preventive measures will necessarily fall to the lot of the general practitioner. To his care is intrusted the physical well-being of the growing girl, the wife, the mother and the woman past the menopause. To him do they look for counsel. His responsibility is great, for upon his advice does the future welfare of the nation largely depend. It is time for the profession and the laity to understand that diseases of the female generative organs in the vast majority of cases are preventable. The popular opinion that women are born to suffer may be denounced as false. With scarcely an exception the origin of pelvic troubles can be traced to some transgression of nature's laws, committed willfully or through ignorance. If it is due to the latter the family physician must in a great measure be held responsible. His part as advisor should be active, not

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passive, if pelvic disease is to be controlled by wise prophylactic measures.

It will be impossible in the time at my disposal to enumerate all the causes of pelvic disease. Only the most important ones can be selected for discussion and the measures to be adopted for their prevention merely outlined.

The causes of pelvic disease to which I would invite your attention are:

1. Imperfect development of the sexual organs.
2. Gonorrhœa.
3. Lacerations due to childbirth.
4. Sepsis following childbirth and abortions.

First: IMPERFECT DEVELOPMENT OF THE SEXUAL ORGANS.

At no period of life will prophylactic measures against pelvic disease prove of so much avail as during the few years prior to puberty. Yet at no time are they so much neglected. The girl is allowed to approach womanhood with no thought bestowed upon the needs of her developing generative apparatus, unless, perchance, menstruation be delayed beyond the expected time, when the physician is consulted, perhaps too late to entirely rectify the conditions resulting from neglect.

There can be no doubt but that pelvic disease due to imperfect development of the sexual organs is very common. How often do we meet with infantile uterus, small convoluted tubes, ante-flexed and elongated cervix. How pitiable it is to observe nature's attempt at the performance of the menstrual function handicapped as she is by these imperfect organs. Uterine and ovarian dysmenorrhœa and the various reflex neuroses are common accompaniments, and doom the sufferer to a life of invalidism unless relief can be obtained.

Oftentimes we may look for the causes of the conditions enumerated in faulty methods of education. The growing girl who should spend most of her time in the open air with never a care in the world is closely confined for hours in a school room, the air of which is frequently so vitiated as to hardly be capable of supporting life. Here she may be found, ambitious to excel in her studies, pouring over her books with back bowed and chest contracted. If the remain-

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der of her time were spent in recreation the evil effects of crowded school rooms might be counteracted, but such, as a rule, is not the case. The parents are ambitious that their daughter shall take high rank in her studies, and that accomplishments, such as music and painting, be acquired at an early age. Hence the girl is urged to still greater mental efforts. Thus the nervous force so needful at puberty for the establishment of the menstrual function is wasted in the acquisition of what may be considered trifles compared with perfect health.

It is here that the family physician's advice will be of inestimable value. He can urge upon the parents the necessity of healthy nervous and muscular systems for the proper development of the sexual organs. He should demand that the school duties be lightened and that the hours of recreation in the open air be lengthened. By carefully instructing the mothers on questions of diet, he will be able to prevent the evils resulting from malnutrition so common in girls from ten to fifteen. He will find the parents only too anxious to cooperate with him. They err only through ignorance of what is best for their children.

The false modesty about all matters relative to the generative organs which prevents the mother from explaining to the girl what she may expect at puberty is to be deprecated. The physician is in a position to know how common it is for the mother from feelings of delicacy to postpone explanations of such matters until the appearance of the first menstruation causes the frightened child to appeal to her for aid against the supposed terrible affliction. The members of the medical profession have a great educational task before them if they are to instruct the growing generation of girls through their mothers. Many false notions must be swept away if we are to arrive at a state of things when modesty, not prudery, shall reign supreme. It is inconceivable why a fundamental law of nature, whereby the species are perpetuated, should be treated as such a mysterious, nay almost sinful matter. When the time comes that the young girl can have the functions of her generative organs explained to her without danger of hav-

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ing a hysterical convulsion, we shall have accomplished a great deal. When she knows as much about her uterus and ovaries as she is taught about the stomach and liver, then will she be in a position to put into practice those prophylactic measures necessary to the maintainance of perfect health.

Second: GONORRHŒA.

It is exceedingly difficult to estimate what proportion of the inflammatory affections of the uterus, tubes and ovaries are due to gonorrhœa; but that the percentage is high is apparent even to the most superficial observer, and the more the disease is studied in woman and the greater the improvements in bacteriology, the higher is found to be this percentage. The question before us is not, however, a pathological or bacteriological one, for the lesions produced by gonorrhœa in the female are well known. The means whereby this disease can be eradicated, however, should receive our thoughtful consideration.

One reason for the prevalence of gonorrhœal disease is that its gravity has never been correctly estimated by the laity or the profession; and this in spite of the teachings of Noegerrath who over twenty years ago demonstrated that many so called cures in the male are fallacies. This accurate observer proved conclusively that in many instances a latent gonorrhœa existed, which could under certain circumstances be communicated years after the acute infection. It has required over twenty years of discussion for the profession to acknowledge the truth of Noegerrath's statements and even now the popular opinion in regard to the disease shows that the profession have failed to impress the importance of these conclusions upon their patients. Is it not a common experience to find the young man who consults us for an acute gonorrhœa treating it as a most trivial affair? He thinks he has been unfortunate, that is all.

Our duty is plain towards these patients and those who may, unless warned, contract the disease. Our American youths are not libertines. The sexual instinct is strong within them, and without the influences of a false education which prohibits their marrying until a certain style of living

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can be maintained their natural tendencies and love of home life would lead them to marry early. The majority look forward to a time when their incomes will allow them to settle down in a home of their own. If it were explained to these young men that gonorrhœa is something more severe than a "cold", that the disease, no matter in how light a form it exists, may produce the most serious results in the male genito-urinary organs, they would perhaps think twice before exposing themselves to the risk of infection. Still the hot blood of youth might impel them to take this risk, if they thought that any possible effects of their folly would be visited upon them alone. But if it were preached throughout this land that gonorrhœal disease once contracted might months, even years after its apparent cure infect the young wife who has become a party to the marriage contract, with full confidence in her husband's honor and integrity, I think that the young man would hesitate before visiting a brothel. If it were generally known that gonorrhœal disease was the cause of sterility and a long train of symptoms entailing the utmost misery upon the innocent wife, would the disease be looked upon as such a trivial affair by the laity? Let the profession do its duty and we shall soon see a change of opinion in the community. The world has suffered enough from the prevailing idea that a young man must sow his wild oats. He sows them because he thinks that at some future time he can settle down and the past will be forgotten. It is the physician's duty to show the absolute falsity of all this. If our boys were properly instructed in regard to the evils resulting from venereal disease, we should see fewer wild oats of that description. Let the parents be enlightened on what may befall their daughters if married to men suffering from latent gonorrhœa. Let the father demand from the prospective son-in-law, not a full pocket book, but a clean bill of health, and there would be fewer unhappy homes. It is only by work in these directions that any headway can be made in the effort to eradicate gonorrhœal disease. Closing the houses of prostitution will not do it, for the inmates are simply driven elsewhere. Licensing the houses has proved a failure as far as

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decreasing gonorrhœal disease is concerned. The only hope lies in the thorough dissemination of knowledge of the evils resulting from gonorrhœal poison, and in a direct appeal to the justice and honor of our young men.

Third: LACERATIONS DUE TO CHILDBIRTH.

Thanks to the teachings of some of our American gynecologists, the profession is alive to the importance of lacerations of the cervix and pelvic floor as factors in the causation of displacements and disease of the pelvic organs. The attention of physicians should now be directed towards improvement in their methods of repairing these lacerations. The gynecologist not infrequently obtains the history of a primary repair of a ruptured perineum, which shows no trace of the obstetrician's work. Usually the failure of the operation has been the result either of want of knowledge of how the stitches should be placed, or to a lack of asepsis either during or after the suturing. When more than one or two stitches are required it is best that the patient be under the influence of an anæsthetic. Usually a few whiffs of chloroform will suffice. It is almost impossible to obtain proper coaptation of the torn edges of the perineal muscles when the patient is in pain and struggling. Perineal tears, as a rule, involve the muscels at the sides of the vagina. Unless this be borne in mind and the sutures placed accordingly a "skin perineum" with a resulting prolapse will be the result. Silk or silk worm gut sutures thoroughly sterilized by boiling should be used. Catgut should not be employed because of the danger of subsequent infection. The patient should be examined within a month after delivery for the purpose of detecting any lacerations of the cervix demanding repair. Any such should be attended to not only for the immediate effect upon the uterus by the promoting of involution, but also for the purpose of avoiding subsequent eversions, erosions and possible malignant disease.

FOURTH. SEPSIS FOLLOWING CHILDBIRTH AND ABORTIONS.

The discovery that childbed fever is, in the large majority of cases, due to the introduction of septic material into the birth canal has resulted in a marked decrease in the number

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of deaths from puerperal septicemia. The dissemination of knowledge amongst the laity as to the etiology of this diseases and the responsibility laid at the door of the physician when a death occurs from this cause has obliged every practitioner to introduce into his obstetrical practice some sort of antiseptic technique. While simple habits of cleanliness on the part of the accoucheur has greatly decreased the mortality from puerperal sepsis, there is still a vast amount of pelvic disease which has its origin in septic infection contracted during or after childbirth or abortions. This milder infection gives rise to septic endometritis, metritis, tubo-ovarian inflammations and pelvic peritonitis. One not infrequently hears a practitioner remark that since the application of the principles of antisepsis to his obstetrical practice he has not lost a case from septicemia. This is commendatory, but one cannot help wondering how many cases of mild sepsis he has had, with slow convalescence and subsequent suffering from pelvic disease. It has been demonstrated that the birth canal becomes infected in the same way that a wound does. The former, however, is more susceptible to septic influences because of the favorable soil it offers for the development of pathogenic microorganisms.

Yet ordinarily the accoucheur does not take the same pains in the sterilization of whatever is to come in contact with the porturient tract as he does before an amputation of the breast or leg. I am convinced that there is the greatest need for reform in the ordinary obstetric technique. The hands and arms are not rendered aseptic by one washing with soap and hot water or by scrubbing with a brush which from constant use and non-sterilization is reeking with germs. The immersion of the hands for a few seconds or minutes in an antiseptic solution renders them far from sterile. The family jar of vaseline commonly offered the physician as an unguent is as septic a material as could possibly be used upon the examining finger, but it is often employed by the physician without the slightest conception on his part that by its use he is endangering his patient. The external genitals of the lying-in woman are not aseptic until so rendered, yet in how

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many cases are examinations made without these precautions being taken. These are but samples of the faculty technique which is the cause of sepsis in varying degrees of intensity.

The same minute attention to the details of surgical cleanliness which is so esssntial to the proper healing of wounds should be used in the most normal case of confinement, if we are to avoid the milder forms of sepsis which may cause so much subsequent suffering. The physician must not refrain from taking these precautions from the idea that childbirth is a normal physiological process and should not be interfered with by preparations which are said to be merely fuss and feathers. Childbirth is a normal process, but nature did not anticipate or provide against the introduction of septic material by the physician who thought it too much fuss to properly cleanse his finger. It is time that the members of the profession awoke to the fact that they, and they alone, are in most instances responsible for the mild sepsis which prolongs the convalescence of the lying-in woman. When they realize this and act accordingly there will be a corresponding decrease in the number of those afflicted with pelvic disease.

What has been said in regard to sepsis after childbirth may be applied even to a greater extent when the uterus is emptied prematurely. It will be found in many instances that the origin of pelvic trouble can be traced directly to a former miscarriage. It is unnecessary to enumerate the reasons for this. They have been gone over so frequently as to have become trite. It would be much more profitable to discuss the question of what measures should be adopted to put a stop to the practice of criminal abortion which is alarmingly frequent at the present time. The abortionist is to be found in every community, and he plies his trade in the most barefaced manner, even making use of the daily papers to advertise his business. It is doubtful whether much can be done towards the extermination of this class of human reptiles, who with their dirty fingers and instruments do more harm in a community than does small pox. As a rule the law only reaches them when a death has resulted at their hands and then conviction

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is exceedingly difficult. They are usually doctors debased by drink or drug habits and who really belong to the defective criminal class.

Unfortunately physicians are acquainted with another class of abortionists made up of so-called respectable members of the profession. Their names and their deeds are known to us all. We have been called to attend their victims and have saved their lives from the effects of flooding or sepsis only by the greatest exertion. It is our own fault if the knowledge of these crimes comes to our ears and we refrain from action. By his own acts the abortionist has abdicated, for the sake of money, his position among the honorable members of his profession. Let us scourge him from our societies and by so doing show our disapproval of his unprofessional conduct. Until this is done he will continue to disgrace us and cast shame upon an honorable calling.

Above all things let us be honest and truthful with ourselves and our patients when they apply to us for relief of certain conditions. Let us not juggle with our consciences and prescribe something with the assurance that it will cause menstruation to appear, if pregnancy has not supervened. When they come to us with the old, old story and request that we help them out of their difficulties, let us explain to them the enormity of the crime they ask us to commit, and not simply shrug our shoulders and refer them to some one who will give them the desired relief. Let us show them that our refusal is not based upon fear of detection, but upon high moral grounds which are a part of our oftentimes much abused code of ethics. It is proof enough that the profession has been negligent in its instruction in this matter of criminal abortion, else patients would not unblushingly insult us so frequently by this request.

It also devolves upon us to describe the evil results which may accrue from a miscarriage, even if death does not result from a septic instrument. And the chances of resulting sterility must not be forgotten. In short, the physician is called upon to enlighten the patient as well as to refuse to accede to her request. When this is done conscientiously, with no fear

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of losing the subsequent patronage of the patient, then will come a time when the community will regard the question of induced abortion in its true light, and these sins against nature with all the attending pain and suffering will be less frequent.

Who can predict the mighty advances in gynecology and abdominal surgery which the one hundredth anniversary of the American Medical Association will reveal? During the past half century these two branches of our science have been revolutionized, chiefly, I am proud to say, through the genius and industry of American physicians. It is not beyond the realms of possibility that these same qualities directed toward the solution of the problems of preventive medicine will again revolutionize these departments during the course of the next fifty years.

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SECTION ON SURGERY.

OFFICERS.

D. MILTON GREENE, Grand Rapids, Chairman.
ALBERT E. BULSON, Jackson, Secretary.
SCHUYLER C. GRAVES, Grand Rapids, Orator.

SECRETARY'S MINUTES.

FIRST DAY, THURSDAY, JUNE 4th.

2 O'CLOCK P. M.

The Section was called to order by the Chairman, and the following papers were read and discussed:

I. Hæmaturia, With Report of Cases, F. W. Robbins, Detroit.
II. Nerve Suturing and Nerve Implantation, G. Carl Huber, Ann Arbor.
III. The Treatment of the Diseases of the Side Cavities of the Nose, E. L. Shurly, Detroit.
IV. A Case of Carcinoma and Sarcoma of the Ethmoid, Involving the Orbit, Two Operations, Autopsy, D. Milton Greene, Grand Rapids.
V. Some Professional Experiences at Home and Abroad, with Pathological Specimens, Donald Maclean, Detroit.
VI. Compound Fractures, W. T. Dodge, Big Rapids.

SECOND DAY. FRIDAY, JUNE 5th.

8:30 O'CLOCK, A. M.

The following papers were read and discussed:

I. Surgical Dressings; Why Do We Use Them? C. Van Zwaluwenburg, Kalamazoo.
II. The Management of Glaucoma, Leartus Conner, Detroit.
III. Antoinfection in Eye Diseases, Don M. Campbell, Detroit.
IV. Tumors Originating From the Large Nerves, C. B. Nancrede, Ann Arbor.
V. The Chromoscope; A New Instrument Designed for Ready Test of Color Perception, L. E. Maire, Detroit.
VI. Subperiosteal Squamo-Mastoid Abscess, O. A. LaCrone, Kalamazoo.

The following papers were read by title only:

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VII. Description of a New Instrument Useful in the Treatment of Diseases of the Middle Ear, Nose and Throat, H. M. Dunlap, Battle Creek.

VIII. The Four Tonsils, C. H. Baker, Bay City.

AFTERNOON SESSION—2 O'CLOCK.

The session was called to order by Dr. E. T. Tappey of Detroit, The first order of business was the election of officers, which resulted as follows:

Chairman—Frederick W. Robbins, Detroit.
Secretary—Albert E. Bulson, Jackson.
Orator—W. F. Strangways, Flint.

The following papers were then read and discussed:

I. Brain Surgery; Report of a Case, Chas. W. Hitchcock, Detroit.

II. Lipoma in Relation to the Etiology of Hernia, F. Maas, Detroit.

III. A New Radical Operation for Femoral Hernia, J. H. Kellogg, Battle Creek.

IV. Some Considerations in the Treatment of Inguinal Hernia, Ernest T. Tappey, Detroit.

V. Report of a Case of Umbilical Hernia Successfully Operated Upon One Hour After Birth, A. L. Arnold, Owosso.

VI. A Surgical Paradoxology, D. Milton Greene, Grand Rapids.

The following were read by title:

VII. Surgery of the Arteries, H. O. Walker, Detroit.

VIII. Obscure Intra-Abdominal Lesions, F. B. Tibbals, Detroit.

The following paper was read at 8 o'clock in the evening at the Avery House, accompanied by an exhibition of the X rays:

IX. Rœntgen Rays as an Aid in Surgical Diagnosis, W. J. Herdman, Ann Arbor.

Adjourned.

ALBERT E. BULSON,
Secretary.

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HÆMATURIA, WITH REPORT OF CASES.

FREDERICK W. ROBBINS, M. D.
Detroit.

Mr. Chairman and Fellows:

Hæmaturia, although only a symptom, nevertheless holds such a prominent relation to the disease itself as often to be taken for it. This, however, should never be the case, and however prominent or urgent this symptom may be, the physician must ever be active in his search for the cause, and if ordinary examination will not reveal it, extraordinary measures must be taken to clear up the diagnosis. It is most important, as will be seen from my cases, that a correct diagnosis be made, both for the satisfaction of the physician and the best interest of his patient.

It may not always be possible to make a direct symptomatic or subjective diagnosis, but even in such cases one can by a process of exclusion often arrive at a reasonable certainty as to the conditions present.

It should be noticed whether the blood comes with the first portion or last portion of urine, or be evenly mixed with the entire quantity; whether the urine be brown, dark or light red. If the latter, and the hemorrhage is slight, the trouble is located in the bladder or in front of it; but if the former, one can *not* be certain that the bleeding is from the kidneys. If, however, pus be present, the location need not, as a rule, be looked for beyond the bladder. It is important to observe whether exercise has any effect in producing or increasing the hemorrhage. Such would be the case were there a foreign body in the kidney, ureter or bladder; also probably if a well-developed malignant growth were present; but not in a tubercular kidney or bladder. Observe also whether the urine is

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perfectly clear at one time and bloody at another; if the blood be evenly diffused or present in the form of clots; if the latter, whether the clots be small like a fly, for example, or tubular, due to casts of the ureter, etc.

The character of pain, if present, is an important symptom. It may be severe, acute from plugging of a ureter with a clot or the pressure of a sharp foreign body or dull grinding, or simply a sensativeness on deep pressure. The kidneys should be carefully palpated, which can usually be accomplished if the patient lie on his back with his thighs flexed, if one hand is pressed in the flank up under the rib, while the other presses down through the abdominal wall, and the patient be directed to take a long breath.

The general health and history of the patient must not be lost sight of, nor must the examiner fail to look for albumen, tissue structures and casts with the microscope.

With all these points, and others which are not mentioned, in mind, a diagnosis can often be arrived at, but even now uncertainty may exist and it will be found desirable to complete the examination with the cystoscope. I have not in mind to read a paper on hæmaturia, but desire to bring out a few points that may provoke discussion on what is to me a very interesting subject and which often proves a difficult one, and can do so in no more interesting way than by reporting, as well as I may, four cases illustrating four types of hæmorrhagic trouble, all of which I have had under my care during the last three months.

CASE 1.—Mrs. T., age twenty-three; seen through the kindness of Dr. Winter, her family physician. Father and mother in splendid health and other family history good; personally has been a robust girl, normal weight 120 pounds; was confined about a year previous to my seeing her; delivery normal; first noticed occasional hæmaturia and loss of strength the latter part of August; clots were passed, rather small and irregular in shape, and at times pure blood. The bleeding had come to be very free and almost continuous when I saw the patient February 5; she was very anæmic, and although able to come to the office quite weak, and she

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had lost twenty pounds of flesh; no cough or symptom of general disease; could elicit no pain over kidneys; passed water every few minutes and the urine was mixed with pus and blood. These symptoms pointed to the bladder. Through the rectum I could feel nothing and resorted to the cystoscope for more light on this mysterious case, which I feared would prove tubercular.

I applied ten per cent. cocaine solution to urethra, injected six ounces of water after first washing out bladder with a solution of boric acid, and a very clear picture presented itself. The summit of bladder (mucous membrane) was red and the capillary blood vessels traversing the bladder in various directions were very beautiful. This condition is typical of a catarrhal cystitis. In no other respect was the larger portion of bladder at all abnormal, but when examining the trigonum there was to be plainly seen, near opening of left ureter, a spherical mass greyish in color, which, when the instrument was held quiet, gradually settled down, but when thrown into motion came into sight at same spot as before, as if held by small pedicle. This was plainly seen at each of the sittings. The bleeding was in no way changed by examination, and a week later, after dilating the urethra, I introduced my index finger and felt several soft papillomata, not, however, as large as I had expected from the cystoscopic picture. The summits of these growths were covered with a phosphatic deposit. After thoroughly curetting with a curette and my finger nail, the pain and bleeding at once ceased. Have seen the patient a number of times since, and on May 26th she reported that there had been no pain or hemorrhage since the operation; no loss of control of urine; and, although having whooping cough, had gained sixteen and one-half pounds of flesh. There is still a slight amount of pus in urine.

CASE 2.—Mrs. P., aged fifty-three. Home wife in good circumstances. Family history good. Has always been strong physically, except for several years has been subject to rheumatic pains and torpidity of liver. Saw her first February 4th, 1896; stools clay colored; conjunctivæ yellow, and urine

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slightly brown and contains blood cells. At times blood is abundant, at other times urine is perfectly clear. Patient has absolutely no pain and only an occasional small blood clot; no enlargement of kidney; very slight sensitiveness on deep pressure over right kidney. Exercise did not seem to materially affect the hemorrhage, for keeping her in bed for two weeks made little if any difference. Cystoscopic examination showed blood coming from right ureter, otherwise negative. Treatment first with ergot with no effect, then gallic acid with same result, and then I grasped the true condition and gave large doses of sweet oil and alkaline waters with the Salicylates and Colchicum, with a gradual return to health and I think as a result of treatment. March 24th stools are normal in color, also the conjunctivæ. The urine is still bloody, although she will go for several days with no blood. One passage may be clear and suddenly, with no evident cause, the next bloody. No pain; appetite good and weight normal, 140 pounds. April 6th, patient reports herself nearly as well as ever; is drinking large quantities of Geneva water.

May 25th, perfectly well; urine normal since last report; fingers and toes slightly swollen—gouty I believe; rides her wheel as easily as ever. My diagnosis in this case was that in a gouty individual there was catarrhal occlusion of bile ducts and congestion of liver and kidney, with rupture of small vessels in the kidney.

CASE 3.—April, 1896. Mr. P., aged twenty-nine; carpenter; married eighteen months; father and mother healthy. Three years ago had malarial fever, since which time has passed urine frequently. First noticed hemorrhage before marriage; no venereal history. At first bleeding was slight and lasted about a week. During warm weather has been comparatively free, but on being chilled the trouble was more severe. Now urinates every two hours; no clots. Blood well mixed with urine, sometimes red, at others brown; pain over both kidneys although not the same severity at all times. Pain and hemorrhage have been continuous for three weeks; pulse 116; temperature 98.6; very thin and has a

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slight cough. Patient is extremely nervous, has twitching of the eyelids, and can sit still but a few minutes at a time. Cystoscopic examination under influence of cocaine produced very little pain, and no bleeding followed, although bladder was irritated with back of instrument. Examination negative. Dr. F. Maas had previously found numerous tubercular bacilli in the urine. Diagnosis, tuberculosis of kidneys.

CASE 4.—Mr. M., aged 72. General insurance. April 10th. Three years ago I treated Mr. M. for a severe colic (renal). He recovered nicely and one year ago had an attack of hæmaturia lasting for a few days only and believed to be the result of acute congestion of kidney from a cold. He has had no trouble since until a week ago had what he thought was blood in the urine in the morning. In afternoon came to me and urine was perfectly clear with no albumen, casts or cells present. Urine passed at office yesterday, six days later, was slightly cloudy and this morning reddish brown, with much albumen, blood and tissue cells present. Sound detected nothing in bladder, but right kidney is enlarged, reaching nearly to crest of ilium, hard and nodulated, but freely movable. In general condition he is thin and very anæmic. Has been growing weaker for several months, but has been attending to office duties.

Later in April Mr. M. had a severe attack of pain during which the pulse went down below fifty and became very weak and irregular.

Diagnosis, carcinoma of kidney, but on account of his age and anæmic and weak condition an operation was not urged. Dr. McGraw and Dr. Henrotin of Chicago, concurred in the diagnosis and advice.

Without going further into detail here are, I think, an unusual number of interesting cases which, if there were time, might well be the subject of a somewhat lengthy discussion.

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DISCUSSION OF DR. ROBBINS' PAPER.

DR. TAPPEY, Detroit: Mr. Chairman: I wish to say that I have been very much interested in Dr. Robbins' report of his four cases that exemplify hæmaturia from various causes very well indeed. The symptom of hæmaturia of course does not necessarily appear in any one of these diseases which Dr. Robbins has very well illustrated by these cases. My own experience in tuberculosis, for instance, of the bladder, has not been associated with hæmaturia. I recall one case just now of an extensive tuberculous disease of the bladder; the walls were very greatly thickened and the bladder consequently very unyielding, producing frequent micturition. That went on finally to ulceration of the walls of the bladder, and perforation of the bladder into the rectum. This was associated with pyuria and not with hæmaturia at all. The symptom is a very interesting one, and the paper that Dr. Robbins has just read exemplifies the necessity of greater exactitude being practiced in all branches of surgery as well as medicine, and the doctor is to be complimented I think upon having arrived at the exact cause of this symptom in these cases.

DR. DECAMP, Grand Rapids: I see he has left out a couple of troubles which would seemingly accompany the subject of that disease which I think are worth mentioning, and these are diabetes and purpura hemorrhagia. During the war I used to get those cases. I see he does not mention those, and I say that we have other cases that are not included in these. His paper is good as far as it goes.

DR. HITCHCOCK, Detroit: There is one thing I wish to speak about, and that is the doctor's use of the cystoscope, a plea that greater exactitude in methods of diagnosis may be found in the more frequent use of instruments for that purpose. The pictures the doctor portrays to us of the use of the cystoscope by which he was enabled to exactly diagnose the papillomatous condition there present are very interesting and highly instructive.

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NERVE SUTURING AND NERVE IMPLANTATION.

G. CARL HUBER, M. D.

Ann Arbor.

Two reasons suggest themselves for bringing before this section the following observations. One of the reasons is an answer to a question asked by Dr. Mann in the annual address on surgery—"Surgery as a Science," delivered at the meeting in 1894. He here asks this question: "To find out truth by observation and experiment, to encourage research, to stimulate investigations in unexplored regions, to aid original discovery, to whom do these duties pertain?" My answer is that it ought to be the desire of every member of this and other sections of our State Society to take upon himself a portion of this duty, and present what results he has obtained when occasion permits. My other reason is a belief, based on somewhat limited experience, that surgeons as a rule have a somewhat vague and imperfect idea as to what the processes of repair in injured nerves are, and as to what conditions favor, retard or prevent such repair.

It is my purpose to bring before you the results of some experimental work, carried on during the past few years, on on the degenerative and regenerative changes taking place in peripheral nerves after section, and to bring to your attention some conclusions which have been reached.

In order to fully comprehend the changes which take place in a nerve after injury, it is necessary to remember that its nerve fibres, at least their essential portion, the axis-cylinders, are parts of a highly differentiated cell, the bodies of which, (nerves of the extremities, to which the discussion will be confined), are found either in the spinal cord (motor fibres),

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or in the posterior root ganglion (sensory fibres). It may therefore not be amiss to very briefly bring to your attention some of the more important facts which recent investigations on the development and ultimate structure of the nervous system have brought to light.

The cell bodies of the nerve fibres distributed to voluntary muscles are found in the anterior portion of the grey matter of the spinal cord. They are of irregular shape and from them two kinds of processes are given off. The one kind, of which there may be from four to ten, divides a short distance from the cell body into secondary and tertiary processes, and so on, and is soon lost in a system of fine branches which do not leave the grey matter of the cord. These are the so-called protoplasmic branches or the dendrits. The other kind, of which each cell has only one, gives off only a few fine branches (collaterals) near the cell body, and soon becomes invested with a fatty sheath, the so-called medullary sheath, forming the axis cylinder of a medullated nerve fibre. These fibres leave the cord through the anterior root, enter a nerve trunk and pass on uninterruptedly until they reach the voluntary muscle fibres. Here they lose their medullary sheath and after piercing the sarcolemma of the muscle fibres break up into a system of fine branches which terminate in the so-called *motor end plates*. The axis cylinders of such fibres, which may be two to three feet in length, must be looked upon as the processes of nerve cells, and as much a portion of the cells as any of the shorter branches or even a portion of the cell bodies. The axis cylinder of such a fibre is in no way interrupted at the annular constrictions, the so-called modes of Ranvier, met with at stated intervals in the medullary sheath. To emphasize these facts, the term *neuron* has in recent years been applied to these nerve units. The cells aboye described may be spoken of as *motor neurons*. The motor neurons, as was first pointed out by His, develop from a single cell, the neuroblast, of epiblastic origin and of round or oval shape. In the earliest stages of the developing cord the neuroblasts are found near the lumen of the neural canal, between the spongioblasts,

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cells which develop into the supporting neuroglia tissue of the cord. The oval neuroblasts develop into pear-shaped cells, and from their smaller end a process grows out, which process elongates and forms the axis cylinder of a developing nerve fibre.

This axis cylinder process is at first non-medullated, the medullary sheath developing at a somewhat later time, from mesoblastic cells which apply themselves to the sides of the developing axis cylinders. It has been suggested that the myelin of an internodal segment (the portion of a nerve fibre between two nodes of Ranvier), is developed from one of these mesoblastic cells. In each internodal segment of a developing or fully developed fibre a single nucleus is found embedded in a small mass of granular protoplasm. Nerve fibres, as is well known, are further invested with a very delicate, seemingly structureless sheath, the neurolemma, the development of which is not as yet fully understood. The protoplasmic branches of the motor neurons develop somewhat later than do the axis cylinder branches also growing out from the cell body.

The sensory neurons have their cell bodies in the posterior root ganglion. These are of oval or round shape, and from them a single process is given off. This process divides a short distance from the cell into two branches, one of which forms the axis cylinder of a nerve fibre going to the periphery, where it enters a nerve trunk, and in conjunction with the nerve fibres of the motor neurons courses on uninterruptedly until it ends free in epithelium or in some special end organ. The other process enters the posterior root and goes to the spinal cord. The single process given off from the cell body, the process going to the periphery, and the one going to the cord, become the axis cylinders of medullated nerve fibres.

The early development of these sensory neurons has been most carefully worked out in the human embryo by V. Lenhossek. He has shown that they have their origin in epiblastic cells found by the side of the medullary plate. As the medullary plate folds up to form the neural canal, the cells which form the fundaments of the several ganglia are

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found in clusters by the side of the neural canal. His has shown that the cells in these clusters become spindle-shaped, developing one process toward the periphery, the other toward the cord. The more recent methods (notably the Golgi method) shows that the central process grows into the spinal cord, the other toward the periphery, there forming a sensory ending. The cells at this stage are bipolar and their processes non-medullated, and only at a later stage do they develope into unipolar cells with T-shaped processes and medullated branches. A single diagram is here given to emphasize the facts above brought forth.

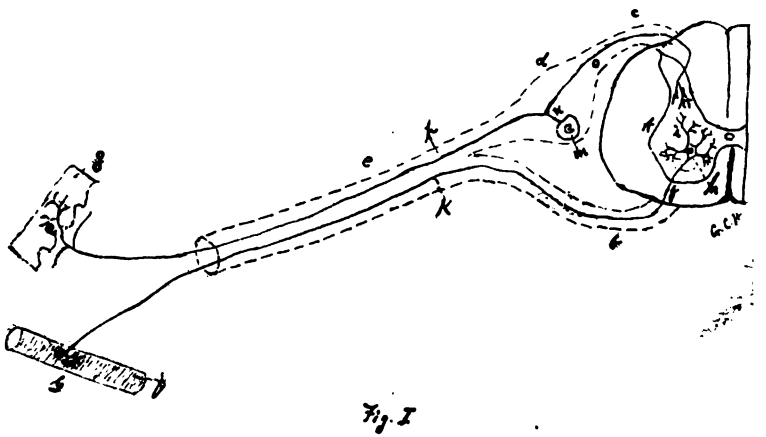

Fig. I

FIG. 1.—*a* Gray Matter of Spinal Cord; *b* Anterior Root; *c* Posterior Root; *e* Nerve Trunk; *f* Voluntary Muscle Fiber; *g* Epithelium; *h* Body and Nucleus of Motor Neuron; *i* Protoplasmic Branches; *j* Axis Cylinder Process; *k* Axis Cylinder of a Medullated Nerve Fiber in Nerve Trunk (Myelin not shown); *l* Ending in Voluntary Muscle; *m* Body of Sensory Neuron; *n* T-shaped Process; *o* Branch in Posterior Root; *p* Axis Cylinder of Sensory Fiber in Nerve Trunk (Myelin not shown); *q* Ending in Epithelium.

From this diagram, which represents one-half of the spinal cord in section, the anterior and the posterior root with its ganglionic enlargement, a nerve trunk and the ending of a motor and sensory neuron, it will be seen that a nerve trunk in the extremities is largely composed of axis cylinder processes (invested with a medullary sheath and neurolemma) coming from cell bodies, which for the motor neurons are located in the spinal cord and for the sensory neurons in the posterior root ganglion. This is especially well shown by the

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development of the motor and sensory neurons as briefly sketched above. There is yet another point to which I wish to draw your attention before taking up the more immediate subject under discussion, namely, that we have abundant experimental and clinical evidence that goes to show that the condition of a nerve fibre throughout its whole extent, both sensory and motor, depends on the condition of the nerve cell with which it is in connection. Destruction of a nerve cell causes a breaking down of the axis cylinder coming from it. Severance of a nerve fibre at any point between the cell body and its termination results in a degeneration of the portion of fibre separated from the cell body. We may safely assume then, that whatever other functions the body and nucleus of a neuron may have, it certainly exerts a trophic influence over its axis cylinder process throughout its whole extent.

In describing the results obtained in the experimental work and in giving a brief critical review of the clinical cases collected, I propose to take them up under two heads:

I. Experiments and cases where the injuries were of such a nature that very little nerve tissue was lost, and where it was possible to bring the ends of the divided nerve together and suture them. When the nerve was sutured soon after the injury, that is, before the inflicted wound has had time to heal, the operation is spoken of as *primary nerve suture;* and as *secondary nerve suture* when it becomes necessary to re-open the wound and expose the divided nerve before the suturing could be carried out.

II. Under the other head will be discussed experiments and clinical cases in which segments varying from four to eight ctm. in length were removed at the time of the experiment, or where the injury to a nerve was of such a nature that the ends could not be brought together and sutured in the ordinary way.

EXPERIMENTAL WORK ON NERVE SUTURING.

The experiments were carried on in conjunction with and under the direction of Professor Howell, at that time Professor of Physiology in the University of Michigan, and were pub-

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lished in full in the Journal of Physiology in 1892 and 1893. The animals used for experimentation were, with but few exceptions, dogs. The nerve operated upon, the ulnar, at a point a little above the elbow. In every experiment the animals were given large doses of morphia and were then completely anæsthetized with chloroform or ether. Antiseptic precautions were taken in every experiment. In the majority of the experiments the nerve was divided and then sutured with fine catgut; in others the nerve was crushed by means of a ligature drawn tightly around the nerve and then again removed, and in still others a short segment of the exposed nerve was killed by coagulating the same by means of a stream of hot water passed through a twisted glass tube on which the nerve was placed for a short time. Before closing the wound the conductivity of the nerve, at the point of mutilation, was tested with electricity, and was found to be destroyed in every experiment. In every experiment, nineteen in which both the right and left ulnar were operated upon by Professor Howell and myself, and ten made by myself during another investigation, the animals were again placed under an anæsthetic, at a time varying in the several experiments from one to seventy-five days after the operation, the nerve in question exposed, tested as to its irritability and conductivity, both electrically and mechanically, and finally the nerve was removed and studied microscopically.

DEGENERATION OF THE PERIPHERAL END.

In dogs the degenerative changes in the peripheral portion of the divided nerve begin about the end of the fourth day. In every animal allowed to live more than four days after the injury to the nerve, could these changes be recognized microscopically, and there was found loss of irritability and conductivity, when the peripheral end of the divided nerve was stimulated with electricity; a point which I wish to emphasize now and to which attention will again be drawn at a later time.

The degenerative changes affect first the axis cylinders and the medullary sheath. The axis cylinders of the degenerating peripheral end of a divided nerve, instead of presenting the

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appearance of a continuous band or rod with a delicate longitudinal striation, surrounded by a smooth medullary sheath showing annular constrictions (the nodes of Ranvier) at stated intervals, begin to break up into fragments varying somewhat in length, and numbering four to eight for each internal segment. At the same time the small amount of protoplasm around the nucleus of each internodal segment increases and the nuclei begin to divide karyokinetically. The degenerating fibres present at this stage the structure shown in fibre A of figure 2.

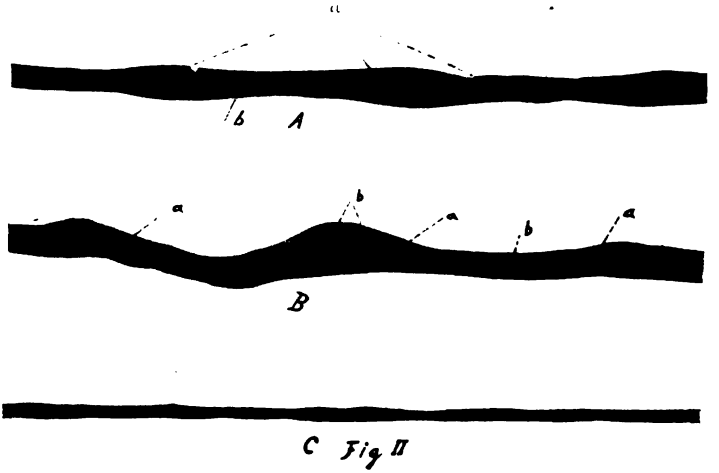

FIG. 2.—*A*, Fiber removed four days after dividing nerve; *a* Segments of Myelin; *b* Nucleus in Protoplasm; *B*, Fiber removed from Peripheral, degenerated ulnar nine days after nerve section; *a* Fragments of Myelin; *b* Proliferated Nuclei; *C*, Fiber removed from degenerated nerve fifteen days after section.

The fragmentation of the myelin and axis cylinder and the absorption of the same go on from day to day, at the same time the protoplasm about the nucleus or nuclei (of the internodal segment) increases in amount and the nuclei in number until about the twelfth to fifteenth day (in dogs), when only collapsed sheaths, containing a nucleated band of almost homogeneous protoplasm, and only here and there a small fragment of myelin, are found. Fibres *B* and *C* of Fig. 2 show drawings made from degenerating fibres taken out nine and fifteen days after the operation. Degenerative changes, such as described above, occur in every nerve fibre

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when severed from its trophic center, the body and nucleus of a neuron, no matter how carefully and rapidly the divided ends of a nerve trunk are sutured. In all of the experiments with which the writer has been directly or indirectly connected, about ninety in number, regeneration of the peripheral end without the above described degenerative changes has never occurred. The peripheral end of the central portion of a divided nerve degenerates for a distance of about one to one and one-half centimeters. The degenerative changes are here essentially the same as those described for the peripheral end of the divided nerve. They are no doubt the result of the mechanical injury inflicted upon the nerve fibres at the time of section. The remaining portion of the central end of the cut nerve fibres, owing to their connection with the cell bodies of the nerves in question, preserve their normal structure.

REGENERATION OF THE PERIPHERAL STUMP.

Time does not permit a full discussion of the various theories that have from time to time been suggested as to the nature of the regenerative changes which take place in the peripheral portion of a divided nerve trunk. Reference will here be made only to some of the more clearly established facts concerning this point.

In microscopical preparations made from the peripheral end of the central stump of divided nerves taken from the animal twenty to twenty-two days after sectioning and suturing the nerve, and embracing that portion of the central stump showing a junction of the normal and degenerated parts of its fibres, most instructive observations can be made. In such preparations, stained so that the axis cylinders are brought out clearly, fine slender filaments coming off from the peripheral, slightly enlarged end of the undegenerated axis cylinder can be traced for a longer or shorter distance into the collapsed sheaths or the degenerated portions of the central fibres. The fine filaments above referred to are to be regarded as buds from the central, undegenerated portion of the axis cylinders of the central stump; the process to be interpreted as the first step in the regeneration of the injured

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nerve. The appearance presented is shown in fibre A of Fig. 3.

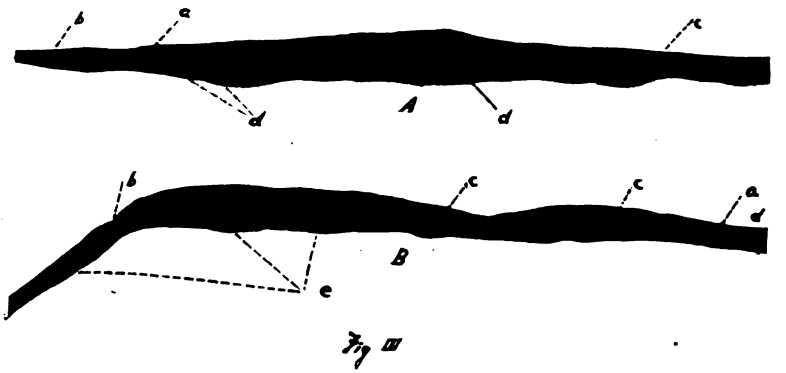

Fig. III

FIG. 3.—*A*, A portion of the peripheral end of a fibre of the central stump, about a ctm above the point of section and removed from a dog twenty-one days after the operation; *a*, peripheral, enlarged end of the old axis cylinder; *b*, new axis cylinder budding from the bulbous end; *c*, axis cylinder in normal portion of said nerve fibre; *d*, nuclei; *B*, fibre removed from same region of the operated nerve in an experiment of longer duration; *a*, enlarged peripheral end of old axis cylinder; *b*, new axis cylinder growing toward the periphery; *c*, other branches of the old axis. cylinder.

If preparations are made from the same region of an operated dog, which was allowed to live a few weeks longer than in above instance, it will be seen that these new axis cylinders often branch or other small filaments (2-3-4 in number) may be given off from the old axis cylinders; see fibre B of figure 3. In experiments where the divided nerve was carefully sutured, or where the severed ends by reason of the juxtaposition of the surrounding tissues are in close apposition, the down budding, newly formed axis cylinders grow through the thin layer of embryonic connective tissue, which has in the meantime developed between the ends of the divided nerve, and grow into or between the collapsed sheaths of the degenerated peripheral portion of the divided nerve. The observations leading to these conclusions were made on nerves removed thirty to forty-five days after section and suturing. In a recent article by Strœbe on degeneration and regeneration of peripheral nerves after injury, similar views as to the regeneration of nerve fibres are held. He gives one figure which seems to me very conclusive. The preparation

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from which this figure was made was a longitudinal section of the large ear nerve removed seventeen days after the nerve had been crushed. In this figure the new axis cylinders can be traced from the end of the undegenerated central axis, through the embryonic connective tissue, into the degenerated peripheral portion of the nerve. There seems to me to be little doubt, especially when taking Strœbe's results in conjunction with similar results obtained by myself, that the regeneration of the peripheral degenerated portion of a divided nerve is brought about by the down growth of new axis cylinders budding from the central undegenerated axis. Regeneration would, if this view is correct, take place after the manner of the development of the sensory and motor nerves, to which attention has previously been called.

The new axis cylinders are at first non-medullated. Concerning the development of the new medullary sheath, there is as yet divergence of opinion. My own observations lead me to believe that the myelin of a regenerating fibre is formed in the way above described from a developing fibre, namely, from mesoblastic cells which apply themselves to the sides of the developing axis cylinders, each cell forming the myelin of an internodal segment. The myelin and protoplasm found in the collapsed sheaths of the degenerated fibres, into which many of the new axis cylinders grow, I regard as forming the new myelin.

In dogs, regeneration of the peripheral end of a divided nerve, when sutured, is complete at the end of two and one-half months, depending somewhat on the age and condition of the animal and the nature and location of the injury. Two questions, which seem to me of some importance to surgeons, may here be asked:

1. May regeneration of the peripheral end be looked for in case the ends of a divided nerve are not sutured?

2. Does regeneration of the peripheral end, without a foregoing degeneration, ever take place? In other words, is there such a thing as *union by first intention* in divided nerves?

As to the first question I may say, that even in experimental work it is unusual for regeneration to follow section of a

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nerve, unless the divided ends are sutured. After section the divided ends retract for a short distance, and before the regenerative processes are initiated connective tissue develops between the divided ends to an extent sufficient to prevent the down growing axis cylinders from reaching the peripheral end. Regeneration of a divided nerve, in case the ends are not sutured, is a matter of chance, depending on the amount and arrangement of the connective tissue between the divided ends of the nerve. I think that if the down growing axis cylinders reach the peripheral end their further growth is assured. Usually, however, the down growing axis cylinders meet with resistance in the connective tissue which forms around the peripheral end of the central stump; they become very tortuous, and we have developed a nerve bulb.

As to the second question I may say that there is very abundant experimental and clinical evidence which goes to show that the peripheral part of a divided nerve always degenerates after severance from its trophic center, the cell body of the neuron of which said fibre is a part. A union of the central and peripheral portion of a divided fibre, without this degeneration, does not, I believe, take place. Union by first intention cannot, if this view be correct, occur. There are a few experimenters, notably Gluck, Wolberg and Bruch, who claim in some few instances to have obtained union by first intention. Their observations are, however, open to serious objections, as their conclusions were based largely on physiological and not microscopical observations. The great majority of all experimenters deny the possibility of union by first intention, and especially is this true of investigators, who have in recent years, working with more approved methods, given attention to the subject.

Mention may at this place be made of a number of surgical which have as a rule been interpreted as showing union by first intention. Howell and Huber collected eight such cases. In four the median nerve was injured, (reported by Bowlby, Laugier, Menzies, Nélaton); in two cases the ulnar, (Bramwell and Clark); in one the radial, (Bœgehold); and in one the ulnar, median and radial, reported by Kraussold.

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In every case but one, injury to ulnar at elbow (Bramwell), the nerves in question were divided at the wrist. Before accepting as conclusive proof any one of the above reported cases, certain facts need to be taken into consideration. In the first place, the data obtainable are as a rule very imperfect. Electrical tests as to the irritability of the nerves in question were not made. But instead, sensation was pronounced as present or absent if, after touching or pricking the area to which the injured nerve was distributed, sensory impulses were or were not conveyed to the brain; and the presence of the motor function was accepted as unimpaired if certain voluntary movements, presumably under the control of the injured nerve, could be executed. Only when surgeons are willing to make careful electrical tests of injured and sutured nerves can their results be compared with the results obtained by the experimenter.

Too little attention seems also to have been given to the fact that especially in the hand, and all the reported cases of so-called union by first intention deal with nerves going to the hand, a decided overlapping of the nerves supplied by the sensory nerves going to this member occurs. The median nerve supplies sensation to the palmer surface of the thumb, index, middle and radial side of ring finger; the ulnar, to the palmer surface of the ulnar side of the ring and the little finger, and the dorsal side of the little, ring, and ulnar side of the middle fingers; the radial. the dorsal surface of the radial side of the middle finger, of the index finger and the thumb. It will be seen then that the thumb and index finger receive sensory nerves from the median and the radial; the middle finger from the median, radial and ulnar; the ring finger from the median and ulnar; the little finger from the ulnar alone. Arloin and Tripier have shown that in order to obtain complete loss of sensation in any one of the digits of a dog's foot, they were compelled to cut all the nerves, four in number, distributed to that digit. If this point could be tested experimentally in the human hand, we have every reason to believe similar results would be obtained, as the nerve supply of the human fingers seems the same as in the

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dog's digits. From the foregoing it may be seen that the fact that sensation is present in the palmer side of the thumb and index fingers, a few days after section and suturing of the median, should not be regarded as proof positive of the conductivity of the sensory fibres of the median, as the sensation may have been eonveyed along the radial. Enough has been said to show the criticism which may be made of the early return of sensation in the reported cases of union by first intention. Letievant and Weir Mitchell suggest a similar line of argument to explain the rapid return of voluntary movements of muscles in the hand after section of one or the other of its motor nerves, in what they term substitute or vicarious movement. Weir Mitchell has drawn attention to the fact that opposition of the thumb and flexion of the index and middle fingers can be brought about by other muscles in the hand than the ones supplied by the median.

A careful study of the nerve supply and of the function of the muscles of the hand will show that any one of the nerves going to the hand may be cut near the wrist without destroying any one of the movements the hand is capable of making. I trust enough has been said to make clear the writer's views on *union by first intention* in divided nerves.

CLINICAL CASES OF NERVE SUTURE.

As it is my aim in this paper to deal largely with the experimental side of the question under discussion, I purpose to be very brief in dealing with the reported cases of nerve suture. Two tables, one of primary, the other of secondary nerve suture, compiled from the cases collected by Howell and Huber, and taken from their articles in the Journal of Physiology, will here be given with a few supplementary remarks.

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TABLE No. I.

SUMMARY OF REPORTED CASES OF "PRIMARY NERVE SUTURE."

	Successful cases.	Reported as Improved.	Failures.	The number of cases observed long enough to admit of regeneration.	The number of cases that were under observation only for a short time.	The average time for the return of sensation after suture, given in months.	The average time for the return of motion after suture, given in months.	Total.
Median	15	7	4	18	8	1½ mo.	4+mo.	26
Ulnar	12	13	6	19	12	3+mo.	11+mo.	31
Median and Ulnar	3	7	3	9	4			13
Musculospiral (Radial)	2	....	....	2				2
Median and Radial	2	....	....	2				2
Median, Ulnar and Radial	1	....	....	1				1
Ulnar and Internal Cutaneous	....	....	1		1			1
Brachial Plexus in Axilla	...	6	....	6				6
External Popliteal	....	....	1	1				1
Posterior Tibial	....	1	....	....	1	1 mo.	....	1
TOTAL	35	34	15	57	26	....	....	84

It will be seen that primary nerve suture, as an operation in man, has been performed at least 84 times; of this number of cases nearly 42 per cent. were reported as successful, about 40 per cent as improved, and the remainder, not quite 18 per cent., as failures. Consideration needs, however, to be given to the fact that only 57 of the reported cases were observed for a time long enough to admit of regeneration, and 26 cases only for a short time.

In the successful cases, the average time for the return of sensation was about 1½ months when the median was injured, and 3 months after injury to the ulnar; for motion, 4 months (median), and about 11 months (ulnar). An explanation as to why the time of return of sensation and motion after injury and suture, comparing the median and ulnar, should be so much in favor of the median, may be found in what has already been said as to the overlapping of the sensory areas

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of the nerves of the hand, and as to vicarious movements. It will be remembered that the sensory area of the median in the hand is in part overlapped by that of the radial, while the little finger receives sensory fibres only from the ulnar. As to the more rapid return of voluntary movements of the muscles supplied by the median than the ulnar, the following facts deserve consideration: In the majority of cases the median was cut below the point of giving off the muscular branches to the long flexors; furthermore, the movements of the thumb and index finger can, in part at least, be executed by muscles not supplied by the median; these muscles, the adductor pollicis, the deep belly of the flexor brevis pollicis and the extensor metacarpi pollicis (which receive their nerve supply from the ulnar and the posterior interosseous) by reason of the increased amount of work required of them, are trained to perform their functions more successfully and easily. The movements of the short muscles supplied by ulnar (nearly all the short muscles in the hand) cannot so easily be taken up by muscles having other nerve supply. This may explain, in part at least, why voluntary movements in muscles supplied by median would seem to return more speedily after injury to this nerve than to the muscles supplied by the ulnar after injury to the ulnar. An explanation as to why sensation returns more quickly than motion may be found in the fact that before regeneration of a *motor neuron* is complete, the development of a special ending in a voluntary muscle fibre is necessary. It may be that the ending of a sensory neuron free ending under and in the lower layers of the epidermis develops more quickly.

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TABLE No. II.

SUMMARY OF CASES OF "SECONDARY NERVE SUTURE."

	Successful cases.	Reported as Improved.	Failures.	The number of cases observed long enough to admit of regeneration.	The number of cases observed only for a short time.	The average time for the return of sensation after suture, given in months.	The average time for the return of motion, after suture, given in months.	Total.
Median	8	9	2	12	5	3 mo.	6½ mo.	19
Ulnar	7	15	2	17	5	3½ mo.	10 mo.	24
Median and Ulnar	2	6	2	9	1	.....	.....	10
Musculospiral (Radial)	11	8	2	15	3	4+mo.	6+mo.	20
Median and Radial	....	1	....	1	.....	.....	.....	1
Upper cord of Brachial Plexus	1	....	....	1	.....	.....	.....	1
Sciatic	1	2	1	4	.....	.....	.....	4
Popliteal	1	....	....	1	.....	.....	.....	1
TOTAL	31	41	9	60	14	.....	.....	80

Of the 80 cases collected, 38 per cent. are reported as successful; a little over 51 per cent. as improved, and 11 per cent. as failures. Of this number, 60 cases were observed long enough to admit of regeneration. The average time for the return of sensation is put at 3-4 months, for motion at 6-10 months. (For a detailed account of the cases of primary and secondary nerve suture, a much fuller discussion of them, and a complete reference to the literature of the subject, the reader is referred to Howell and Huber's article from which the above summaries and much other matter have been taken.) The clinical cases collected show that primary and secondary nerve suture are to be looked upon as legitimate surgical operations and that recovery or improvement may be hoped for in the majority of the cases operated upon.

In most of the cases in which surgeons are called upon to deal with injuries to nerves primary or secondary nerve suture can be performed without much difficulty. The injuries to which nerves are exposed, such as cuts with sharp instru-

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ments, glass, buzz-saws, etc., even gunshot wounds, are of such a nature that not much nerve tissue is destroyed, and even after "trimming up" the ends of the nerve stumps they can be brought together and sutured.

In wounds where the soft parts of an extremity are lacerated, several inches of a nerve trunk may be destroyed, inflammation and suppuration may supervene, and cicatricial tissue may bind down the ends of a nerve in such a way that it would be difficult, without long dissection, to find the ends of the nerve stumps. To overcome the difficulties met with in such cases, various methods have been suggested. I purpose now to bring before you the results of some experiments which have been made with a view of testing experimentally these methods, and ascertaining, if possible, which one promises the most favorable results. The methods suggested are the following:

1. Nerve implantation; implanting a segment of a nerve removed from a recently amputated stump or from one of the lower animals between the divided and separated ends of the injured nerve.

2. Tubular suture, (Vanlair); this operation consists in inserting the ends of a divided nerve into a decalcified bone tube.

3. Suture a distance, (Assaky); uniting the separated ends of a divided nerve with catgut threads or a bundle of catgut threads.

4. Nerve flaps, (Letievant). made either from central or peripheral stump.

5. Nerve grafting.

6. Nerve grafting and cross-suturing. Where two nerves having a parallel course are cut at a different level, it has been suggested by Tillmanns that the central long stump of one nerve be sutured to the peripheral long stump of the other nerve, and grafting the two short stumps to the accompanying nerve.

7. Resecting the bone or bones of an extremity and suturing the nerve or nerves.

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EXPERIMENTAL WORK.

Dogs were used in all the experiments, and the nerve selected was in nearly every instance the ulnar of the right or left side; in a few instances the sciatic nerve was operated upon. Large doses of morphia, followed by ether, were used to bring about anæsthesia. Antiseptic precautions were carried out in detail.

EXPERIMENTS ON NERVE IMPLANTATIONS. No. 1–25.

A portion of the nerve operated upon was in each case removed and a segment of equal length implanted and sutured, above and below, with fine catgut sutures to the ends of the resected nerve. The segment removed varied from four to eight ctm. in length. The segment implanted was in some few instances taken from the ulnar of the opposite side, usually, however, from one of the sciatics of a cat. After each implantation the connective tissue was drawn over the nerve by means of several buried sutures and the skin-wound closed with silk sutures. The several animals were killed respectively at the end of the 2d, 3d, 4th, 5th, 6th, 9th, 10th, 12th, 21st, 39th, 117th, 120th, 121st, 136th, 149th, 152d and 182d day after the implantation. It was hoped that by taking out the operated nerve at such times the fate of the implanted nerve segment and the peripheral end of the nerve operated upon might be learned, and the process of regeneration, should that take place, observed. In every experiment degeneration of the peripheral end ensued; the process was here identical to the one following nerve section previously described. A similar fate befell the implanted segment. It degenerates even more rapidly than does the peripheral end. In the implanted segment degeneration begins the second day, and by the end of the ninth very little else than collapsed sheaths containing a nucleated band of protoplasm was seen. In the implanted segment large numbers of connective tissue cells and polynuclear white blood cells were seen between the collapsed, degenerated fibres, differing in this respect from the degenerated peripheral portion of the nerve. The regenerative process was noticed as early as the 21st day. In a dog killed 21 days after the implantation new axis cylinders

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budding from the central undegenerated axis were found in the central end of the degenerated, implanted piece. In a dog killed 39 days after the operation their presence was observed in the peripheral end of the implanted segment. The new axis cylinders grow through the implanted segment partly within the sheath of the degenerated nerve fibres, to some extent, however, between them. By the end of the fourth month new axis cylinders are found in the upper end of the peripheral ulnar and in the muscular branches given off near the elbow; the remaining portion of the peripheral ulnar was at this time, as yet, completely degenerated. In the experiment of 182 days duration the entire peripheral ulnar was found to contain axis cylinders, many of which had developed into medullated nerve fibres.

Not nearly all the axis cylinders, budding out from the central axes, reached the peripheral portion of the resected nerve; many are deflected from their course and are lost in the surrounding connective tissue.

It may be seen from the above that the implanted segment takes no *active* part in the regeneration of the resected nerve, certainly not as far as the axis cylinders are concerned. It offers suitable, and as I hope to show, the most favorable mechanical conditions to the growing axis cylinders, guiding them in their downward growth to the peripheral end of the resected nerve. Of the 25 experiments made, 9 were observed for a period longer than 120 days; in 8 of these regeneration of the peripheral portion of the resected nerve was wholly or in part attained.

One experiment (No. 26) of secondary nerve implantation was made. In this the ulnar was resected to the extent of 6 ctm. and the wound closed; 41 days later the nerve was again exposed, the ends vivified and 7 ctm. of a cat's sciatic implanted. At the end of 155 days the animal was killed and the nerve examined. Regeneration of the peripheral end to the middle of the forearm was found.

TUBULAR SUTURE.

Experiments Nos. 27 to 34. This operation was I believe suggested by Gluck and has received the endorsement of

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Vanlair, who in a number of experiments has obtained very favorable results. Eight experiments were made. The operation was as follows: After exposing the nerve, from 3 to 7 ctm. were removed and the ends of the resected nerve inserted into a decalcified bone tube slightly longer than the distance separating the ends of the resected nerve. The ends of the nerve and the bone tube were retained in position by means of catgut sutures passed through the nerve and the sides of the tube, as shown in Fig. IV.

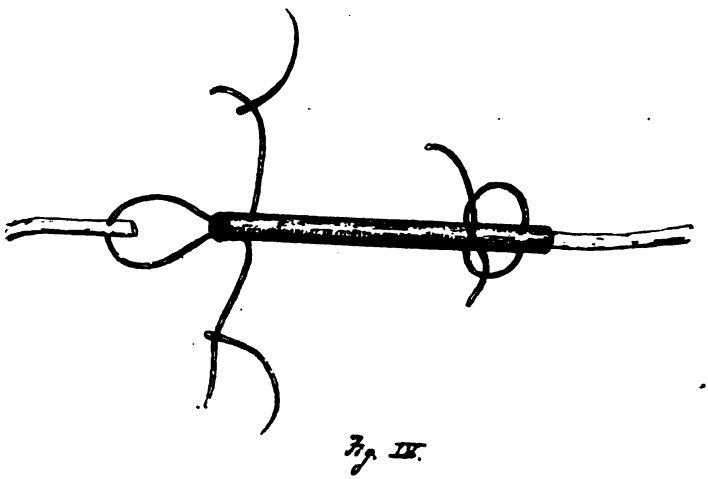

FIG. IV.—Shows the manner of performing the operation of Tubular Suture.

The wound was closed with catgut and silk sutures. The dogs were allowed to live for periods varying from 5 to 155 days (5, 10, 22, 54, 121, 130, 136, 155 days respectively), at the end of which time the animal was killed and the nerve removed. In this series four animals were allowed to live for a period of 120 days or longer, three of primary and one of secondary tubular suture. In two experiments of primary tubular suture (ulnar nerve) a few axis cylinders were found in the peripheral ulnar below the bone tube. In other primary tubular suture (sciatic), the animal was killed 130 days after the operation; no regeneration of the peripheral stump was found.

In the experiments of secondary tubular suture, the ulnar was resected to the extent of 7 ctm., and the wound closed;

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41 days after the resection the nerve was again exposed, the ends vivified and inserted into a bone tube and sutured. The animal was killed 155 days after the second operation; regeneration of the peripheral ulnar to the middle of the forearm was found. The experiments of short duration show that after the insertion of a bone tube this is replaced during the first ten days by embryonic connective tissue, leaving, as it were, a path of least resistance through which the new axis cylinders may grow. These results, though not nearly so satisfactory as were the ones obtained in the experiments of nerve implantation, show very conclusively that the regeneration of the peripheral nerve stump after section is brought about by a down growth of buds from the central axis cylinders. In no instance was there any evidence of regeneration in the peripheral nerve, unless the new axis cylinders growing from the central end were able to penetrate the connective tissue separating the resected ends, and in this way reach the peripheral stump.

SUTURE A DISTANCE.

Experiments Nos. 35 to 41. This operation, suggested by Gluck and Assaky, consists in running a catgut suture forward and backward three or four times, between the resected ends of a nerve. This operation was in several experiments modified in the following way, by the writer. Eight to ten segments of a No. 3 chromacised catgut, about 1 ctm. longer than the distance separating the ends of the resected nerve, were wound with fine catgut threads. The ends of the winding threads were left long and used as sutures for uniting the bundle of coarse threads to the end of the resected nerve, as shown in Fig. V.

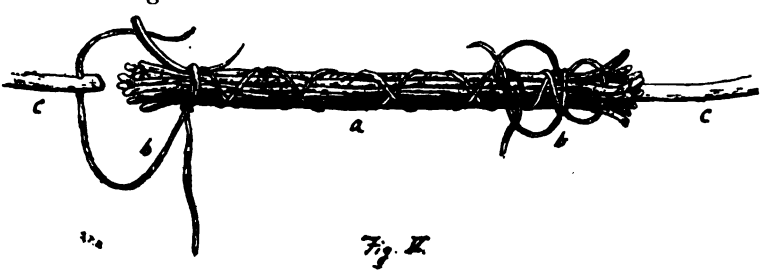

FIG. 5. *a*, Bundle of catgut threads; *b*, ends of winding threads used as sutures; *c*, resected ends of the nerve.

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The wound was then closed as in other experiments. Seven experiments of this nature were made; in three of these the dogs were allowed to live 120 days or more after the operation. In one of these experiments (136 days after the suture a distance), regeneration to the middle of the forearm was noted; in another (152 days, catgut bundle) regeneration was complete; in the third (136 days, catgut bundle), no regeneration of the peripheral ulnar was seen. The experiments of short duration (5, 10, 20, 39 days, respectively) show that the catgut threads are absorbed somewhat slowly and replaced by a loose connective tissue, through which the new axis cylinders grow.

NERVE FLAPS.

Experiments 42 to 48. This operation was suggested by Letievant. I find no previous record of any experimental work with this method. In six of the seven experiments the flap was made from the peripheral end of the central stump of the resected nerve, and sutured to the central end of the peripheral stump. In the other experiment, flaps were made from both stumps; brought together end to end and sutured with fine catgut. In all the experiments the results were unsatisfactory. The flaps, even when made from the central stump degenerate, as does also the greater portion of that part of the central stump from which the flaps were made. The new axis cylinders do not grow into the flaps, but into the surronding connective tissue, so that the peripheral end of the central stump usually developes into a large nerve bulb. The results obtained lead to the conclusion that the operation, though it seems to have the sanction of some surgeons, is not likely to give favorable results.

NERVE GRAFTING.

Experiment No. 41. Only one experiment of this nature was made. The median and ulnar of the left leg of a dog were exposed above the elbow; the median was resected to the extent of four ctm., its peripheral stump was sutured by means of three catgut sutures to the previously denuded surface of the ulnar. The nerves were again exposed 149 days

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after the operation; the engrafted median was found completely degenerated.

CROSS SUTURING THE LONG ENDS AND ENGRAFTING THE SHORT ENDS OF TWO NERVES HAVING A PARALLEL COURSE AND CUT AT A DIFFERENT LEVEL.

Experiment No. 50. The nature of this experiment is shown in Fig. 6:

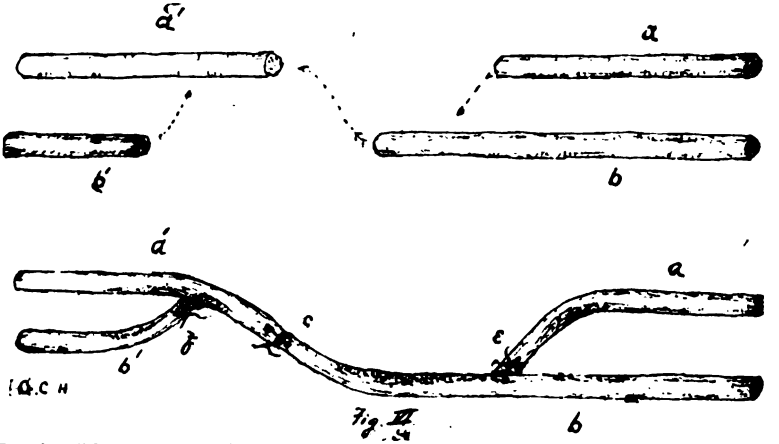

FIG. 6.—Tillmann's Operation of Cross-Suturing and Grafting. *a*, Short Central Ulnar Stump; *a'*, Long Peripheral Ulnar Stump: *b*, Long Central Median Stump; *b'*, Short Peripheral Median Stump.

The animal was killed 182 days after the operation and the following results noted: The peripheral end of the ulnar, sutured to the central end of the median, was found completely regenerated. The central ulnar stump grafted to the median terminated in a large bulb, the peripheral median was completely degenerated. It will be seen that only one of the peripheral ends of the two divided nerves was regenerated. There is no doubt, although no experiments were made in this direction, that if nerve segments were implated between the resected ends of the two nerves, regeneration of both peripheral portions would have followed.

The results of the experiments may be summarized in the following table:

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TABLE NO. 3.

SUMMARY OF EXPERIMENTS.

OPERATION	Number.	No. where 120 days or more intervened between operation and examination.	No. in which regeneration was complete.	No. in which regeneration extended to middle of forearm.	No. in which regeneration extended just below peripheral wound.	Failure.
Nerve Implantation	26	10	5	4	.....	1
Tubular Suture	8	4	.....	1	2	1
Suture a Distance	7	3	1	1	.....	1
Nerve Flaps	7	2	.....	.....	.....	2
Nerve Grafting	1	1	.....	.....	.....	1
Cross Suturing and Grafting	1	1	.....	.....	.....	1

This summary shows that the results are most favorable after nerve implantation, although in a few instances regeneration was obtained after tubular suture and suture a distance.

I have been able to collect 23 cases where one or the other of the above methods was used to overcome the loss of nerve substance. These are summarized in the following table :

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TABLE NO. 4.

SUMMARY OF CASES OPERATED UPON FOR LOSS OF NERVE SUBSTANCE.

OPERATION	Nerve Operated Upon	Primary or Secondary Operations.	No. of cases reported.	Successful.	Improved.	Failure.	No. of cases observed 2 mos. or longer.	Incomplete report as to results.	REMARKS
Implantation	Ulnar	Primary	3	....	2	1	1	2	Implanted seg. removed in one case.
		Secondary	....	....	....	....	....	....	
	Median	Primary	4	....	3	1	3	2	
		Secondary	1	....	1	....	1	....	
	Ulner and Median.	Primary	....	....	....	....	....	....	
		Secondary.	2	1	1	....	2	....	
	Radial	Primary	....	....	....	....	....	....	
		Secondary	3	1	....	2	2	1	
	Sciatic	Primary	1	1	....	....	....	....	Report gives condition 16 days after operation.
		Secondary	....	....	....	....	....	....	
Tubular Suture	Ulnar and Median.	Secondary	1	....	1	....	1	....	
Suture a Distance	Radial	Secondary	1	1	....	....	1	....	
Nerve Flaps	Ulnar and Median.	Secondary	2	1	....	1	2	....	
Nerve Grafting	Median	Primary	1	....	1	....	1	....	
	Ulnar	Primary	1	....	1	....	1	....	
Resection of bone and Suturing Nerves.	Ulnar and Median.	Secondary	1	1	....	....	1	....	
	Musculo-spiral	Secondary	1	1	....	....	1	....	
	One of arm nerves.	Secondary	1	?	....	....	?	....	
	Total		23	9	9	5	18	6	

In the above table the operator's interpretation of the cases reported has been accepted, although this seems often unwarranted. The cases were often imperfectly reported; too little attention has been given to the condition of the parts before and immediately after the operation. The criticisms made on the interpretations of the results in reported cases of primary and secondary nerve suture seem also applicable in the above cases; namely, that the presence of voluntary movements and of sensation in the parts supplied by an injured nerve does not of necessity imply a regeneration of said nerve, but

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that very often vicarious motion and sensation may explain many of the observed facts. This no doubt often explains the discrepancies in the results obtained by the operator and the experimenter. In an experiment, the nerve can at any time after the operation be again exposed and careful physiological and microscopical examinations made; which of course cannot be the case in surgical cases. The successful results obtained in the reported cases of nerve grafting and of cases where nerve flaps were made are therefore to be accepted with much hesitation.

It is not my purpose at this place to go more fully into the reports of the cases collected; time and space do not permit this. In a research published by the author in the Journal of Morphology, Vol. XI, a full account of all the experiments made by others and myself, and of the surgical cases collected, is given; also a reference to the literature discussed. For further details, the reader is referred to this article.

The experimental work here reported and the cases collected warrant me in giving the following conclusions:

1. Degeneration of the portion of a nerve fibre cut from its trophic center, the body and nucleus of the neuron of which said fibre is a part, follows every injury severe enough to cause a loss of continuity in its axis cylinders. The central portion of a divided nerve fibre degenerates only for a short distance.

2. Regeneration of the peripheral degenerated portion of a cut nerve fibre is through the agency of new axis cylinders budding from the undegenerated axis cylinder central to the injury.

3. Evidence which would prove a possibility of *union by first intention* in divided peripheral nerves is not at hand.

4. Regeneration of the peripheral portion of a divided nerve *may* take place even though the nerve is not sutured; is however much more likely to follow careful suturing.

5. Experimental evidence and clinical experience show that after careful suturing of the divided ends of a nerve, regeneration, in part at least, of its peripheral portion, may be hoped for in the majority of cases.

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6. Experimental evidence and clinical experience show that of the several methods suggested for overcoming loss of substance in peripheral nerves the operation of implanting a segment taken from another nerve promises the most favorable results.

LITERATURE TO WHICH REFERENCE HAS BEEN MADE.

His.—Die Neuroblasten und deren Entstehung im embryonalen Mark. Separat. Abzug aus den Archiv fur Anatomie und Physiologie.

VONLENHOSSEK.—Archiv fur Anatomie und Physiologie, 1891.

HOWELL AND HUBER.—A Physiological, Histological and Clinical Study of the Degeneration and Regeneration in Peripheral Nerve Fibres after severence of their connections with the nerve centers.
Journal of Physiology, Vol. XIII, 1892, and Vol. XIV, 1893.

STROEBE.—Experimentelle Untersuchungen uber Degeneration und Regeneration peripherer Nerven nach Verletzungen.
Beitrage z. path. Anat. und z. Allgemeinen Path. Band XIII.

GLUCK.—Virchow's Archive, Vol. LXXII, 1878.

WOLBERY—Deut. Zeit. f. Chir. 1882-84.

ARLOIN ET TRIPIER.—Arch. de phys. norm. et path. 1869-1876.

LETIEVANT—Traite des sections nerve uses. Paris, 1873.

WEIR MITCHELL —Injuries of Nerves. 1872.

HUBER.—A study of the operative treatment for loss of nerve substance in peripheral nerves.
Journal of Pathology, Vol XI. 1895.

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DISCUSSION ON DR. HUBER'S PAPER.

DR. MCGRAW, Detroit: I think, Mr. President, perhaps this kind of work is what is needed to clear up some of these points. It is unfortunate in cases of nerve injuries that very frequently the injuries are apparently slight and the general practitioner who handles them does not seem to recognize the necessity of very speedy intervention. The cases which I have had, and in which I have always had failures in getting function of the nerve, are all cases operated on long after the reception of the injury. As for instance a letter carrier in Detroit, whose ulnar nerve was injured, was treated by a general practitioner for some months; afterwards I operated upon him, cutting away a dense scar (and by the wav, I sent that nerve to Ann Arbor, to Dr. Nancrede for investigation by Dr. Hale if I remember right). I was enabled to draw the ends of the nerve together, uniting them very accurately with fine silk, but without any effect whatever in producing any nerve regereration. But if these operations could be done earlier—if they could be done when the injury was first received—before degeneration has taken place—if they could be sutured and if the wound could be made perfectly aseptic, I think that the experience of surgeons has shown that good results might be obtained—by early operating.

There is one point I should like to ask Dr Huber, and that is, his idea of the pathology of those cases of neuralgia (and those cases of neuralgia are almost all cases of neuralgia) in which two or three years after excision the neuralgia returns. I think, if I understood the doctor, he spoke of those cases as cases of nerve regeneration. It seems to me that those cases will hardly bear that explanation of nerve regeneration. A man is operated upon for instance for neuralgia, and the surgeon not only takes out a portion of the nerve but pulls out a couple of inches or more, and then after two or three years

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the neuralgia returns, and I think that those cases ought not to be interpeted as nerve regeneration. It is possible that the interpetation of the profession needs to be revised as to these cases. They have hitherto been interpeted as degenerations which go on toward the central portion of the nerve, so that the surgeon has to go up higher and higher all the time, making his operations deeper until he gets up to the brain itself, in order to check the neuralgia. This is a line of surgery that is really in its infancy, and I think Dr. Huber is to be congratulated upon the care with which he has performed his experiments and upon the line of experimentation.

DR. HERDMAN, Ann Arbor: Dr. Huber has well said that he has the advantage over the surgeon in being able to take out the nerve that he has operated upon and examine the condition afterwards. That certainly is an advantage, and I think that point which Dr. McGraw has brought up concerning the condition after a nerve has been resected in that way could be settled if the surgeon had that opportunity.

There is one case that I recall in which I had some experience with successive resectioning or removing of a nerve, which rather proves the interpretation that Dr. McGraw puts upon it. I have one case in mind where for neuralgic trouble which resulted in some trophic change in the hand amputation was finally necessary at the wrist. That was succeeded by a return of the neuralgic pain with a nerve tumor near the peripherial end of the nerve. The pain became intolerable, amputation was again made, the trouble again returning until successive amputation, four of them in number, removed the arm as far as the shoulder joint. Now the patient is having intolerable pain in the region of the neck. Oftentimes during this time she referred that pain to the periphery, showing that the sensation, as far as she interpreted it, was such as to lead to the belief that the arm was still there. I think, as far as one case can prove it, this indicates that the disturbance which was perhaps a neuritis at the start resulted in degeneration of the nerve.

But there is another point which Dr. Huber's paper suggested to my mind of practical importance, and that is, that

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the surgeon need not be always entirely at sea concerning the condition of a nerve if he will make use of such means as there are at hand for determining its condition.

It is possible at the end of the two weeks in which Dr. Huber says this degeneration takes place in the peripherial end of the nerve for this to be positively determined by making the electric tests. You can see plainly whether you have the reaction of degeneration there by the electric tests—by the constant current. This is a very accurate method of determining the condition of a nerve and of the muscles supplied by the nerve; and if there is any doubt concerning the effect that the injury has had upon the nerve, this is the most practical means for determining very early in the history of the injury the condition of the nerve. By means of the Faradic current or by means of the constant current suggested already much can be learned of the condition of the peripheral end of the nerves without subjecting them to the microscope, and such methods would be very helpful to the surgeon if employed.

DR. SMITH, Detroit: The doctor's paper was very interesting. I have not had any particular experience in nerve surgery in the procedure known as secondary suture, yet I have had one unique experience in doing the primary suture operation.

A young man in stepping into his boat with his gun, the breech down, the barrel under his arm, stepped upon the trigger, the gun going off so that the contents were received into the axillary region of the right arm I think, severing the ulnar nerve and axillary artery. I had the privilege at Grace Hospital of tying that artery, and also bringing in position by one cat gug suture the ulnar nerve. Had the good fortune of seeing that arm regain its strength, the nerve repaired, and the boy receiving the use of his arm, motion and sensation taking place to the extent that he could show me that he had the use of both before he left the hospital—about four weeks. The motion and sensation were sufficient for use at that time. The arm completely recovered. I think that as the last speaker

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says we ought to congratulate the essayist of this paper upon the fact that he has been able to experiment in this line.

DR. WM. FULLER, Grand Rapids: I have a limited experience in the attempt to repair nerves. About ten years ago I brought the divided ends of the popliteal nerves into apposition, which had been separated for seven years. The distal portion was wasted to a mere sheath and was difficult to find, while the end of the upper portion terminated in a large bulb which I cut off. The nerve and the sheath below were united by sutures. The operation was an experiment and the result was negative. I subsequently amputated the leg.

In a case of division of the median nerve at the wrist by a plate of glass the patient suffered violent pain after the wound had healed. No glass could be found in the wound nor subsequently in the scar. As a last resort to relieve the intense pain I removed about four inches of the nerve above the wound. The nerve for two or three inches was a hard nodulated cord. The pain was relieved for a time but it was three or four years before he was able to do without morphine entirely.

A few months ago I removed a neuroma from the middle of the forearm caused by a puncture of a penknife. I took out an inch of the nerve (*Ext Cutaneous*) closing the wound by a continuous suture and with careful aseptic precautions. Healing was by first intention. The patient was relieved for a time, about a month, but the pain returned, and the scar had a keloid appearance like that of a burn, and was very sensitive to the touch. About a month ago he returned complaining of pain, and the end of the nerve could be distinctly felt about an inch above the scar. I cut down upon it, and after the manner of the veterinarians pulled the nerve out as far as I could, and after a severe stretching cut it off for at least two inches. I am, with the patient, anxiously awaiting the result. If anyone can tell me what to do with these neuromas so as to get a certain result, I shall be under obligations to him, for they are a great nuisance to the surgeon as well as the patient.

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DR. MACLEAN, Detroit: Mr. Chairman, I did not contemplate taking any part in this discussion, but the question that Dr. Fuller has just asked suggests to me a reply.

But before doing that I wish to say with regard to this paper that it struck me as being an elegant example, not only of the joining together of severed nerves, but also the dove-tailing together of scientific physiology and surgery in a very beautiful way, and it is the kind of paper and the kind of work that really now-a-days is very much required and very much appreciated. It is of the very highest importance; the kind of work that always attracts attention and always has a good effect and always stimulates further work.

I have not had, myself, very much experience in the suturing of severed nerves, and I must say that the little I have had was, like Dr. McGraw's, not very satisfactory. Some of the gentlemen here present, I think Dr. Herdman and Dr. Huber also, will remember a case that I operated upon in Ann Arbor; a little boy with a wound of the peroneal nerve. The peroneal nerve is very much exposed. It comes to the surface, winding around the fibula in such a way as to be very easily injured. I have forgotten now exactly how this boy's nerve was wounded, but it was done some time before. I saw him some months previously and was anxious to operate then, but for some reason or other the operation was deferred. I had no very great trouble in dissecting out the ends of the nerve and cutting off and trimming up the ends and suturing them together, which I did with very fine catgut sutures. I then put the limb in a flexed position and I think in a plaster cast; but, at any rate, put it up in such a way as to keep it very quiet for some time. I never heard exactly the result of that case. I am rather disposed to believe it was successful from the fact that the patient never reported afterwards. If a case is unsatisfactory you are sure to hear from it. If it is perfectly satisfactory to the patient and the friends it is a chance whether you will ever hear or not. There is an old instance of that in the case of the ten lepers which were cured, only one of whom came back, and the

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question has been asked from that time to the present, "Where are the nine?"

Sir William Savory of London, when he was Orator in Surgery of the British Medical Association some twelve or fifteen years ago, or longer than that I dare say, gave one of the most eloquent addresses ever delivered before any medical association. In that address he reported a case of a wound of the sciatic nerve with complete paralysis and wasting, in which he dissected out the ends and stitched them together with a perfectly satisfactory result. I do not think that there was anything special in his technique, in his method of doing the operation; it may be that he just happened to hit on a peculiarly fortunate case. But any one who is interested in the subject will find it by looking back in the British Medical Journal to the time when Sir William Savory was Orator of the British Medical Association on Surgery.

As to this excision of neuromas, is it, as Dr. Fuller says, one of the most annoying things in surgery? It is very annoying to the patient and not much less so to the surgeon.

Now I will take this opportunity to say that at Atlanta the other day, before the Association of Southern Surgeons, Dr. Senn read a paper upon this question which will very soon be published, and all who are interested in the subject I think will get some very good ideas from that paper. I will say here that he recommends making a sort of flap of the nerve and bringing the two sides together so as to have it completely covered by the surrounding tissues and by its own sheath, especially by its own sheath. That is the main idea of the paper, and it struck me at the time as being possibly a rational and good one; but I do not think there is very much experience in relation to it as yet, not even on the part of Dr. Senn.

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SURGERY OF THE SIDE CAVITIES OF THE NOSE.

E. L SHURLY, M. D.,

Detroit.

The diseases of the side cavities of the nasal passages have been attracting the attention of the profession commensurate with the development of our knowledge concerning the various morbid conditions to which they are subject. The term "side cavities" will be understood to embrace the ethmoidal cells, the antrum of Highmore, the frontal and sphenoidal sinuses. It will not be necessary, of course, to give any anatomic description of these parts to such an audience; and I shall, therefore, ask your attention briefly to the signs, symptoms and therapy belonging to the subject. But before doing so it will be proper to state that the regions in question are more commonly affected either by acute or chronic inflammation of their lining membrane than any other form of disease; next, by diseased conditions of the bones which constitute proximate walls; and lastly, by the various neoplasms, either benign or malignant, although the latter are seldom primary growths. Among the dyscrasiæ, so called, it may be stated that syphilis plays an important part in the causation of the inflammations. Concerning the antrum, however, disease of the roots of the teeth or alveolar process, diseases of the lachrymal sac and nasal duct frequently give rise coincidently or subsequently to inflammation of these lining membranes, also inflammation of the facial nerve or its branches—constituting a veritable neuritis—although passing under the name of facial neuralgia or tic douloureux. Blows or other injuries to the nose and diseases of the orbit often give rise to more or less serious inflammation of either the ethmoidal

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labyrinths, frontal or maxillary sinuses. But by far the most common cause of disease of these cavities lies in an extention to them of the morbid process from the nasal chambers by continuity. Sometimes the cause consists of the presence of tumors or deformities. The latter conditions of the nasal chambers may induce such an inflammation by interfering with proper drainage, or by direct extension of the inflammatory process in the mucous membrane itself. Again, in some instances deformities of the septum, by exerting unnatural pressure upon the hiatus semilunaris may bring about in time an inflammation of the lining of the antrum of the respective side; and likewise pressure upon the ethmoidal plate at the top or attic of the nasal chamber may induce disease of the ethmoid cells without the co-operation of any constitutional disorder such as syphilis. Some authorities believe that there is a very strong causal relation betweeen the presence of polypi and purulent ethmoiditis both as to cause and effect; however such relationship is not very well established as a principle, notwithstanding that the two conditions frequently co-exist. Finally constitutional perturbations of various sorts may be the basis of the attack.

The diagnosis of maladies of this region is usually based upon the following symptoms and signs: First, pain either dull or sharp in character and paroxysmal or continual (neuralgia) over the frontal, supra-orbital, occipital, lateral nasal or malar regions is considered by some observers as almost pathognomonic of either inflammation, intumescence or morbid growths effecting either one or the other of these sinuses, especially the frontal and ethmoidal, and rarely the sphenoidal. Second, tenderness upon pressure in any of these regions mentioned is considered as additional evidence of such a morbid condition. Third, the presence of pus in the nasal secretion in any considerable quantity is held to be almost positive evidence of suppuration in either the ethmoidal cells, the maxillary or frontal sinus. Very often, however, a subacute inflammation confined to the schneiderian membrane only may give rise to any or all of these signs; but as the latter event is not the rule unless following an injury or the

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impaction of a foreign body in the nasal passages, it is thought not to invalidate the importance of the above mentioned signs where taken in connection with the clinical history. The differentiation as to the sinus involved is sometimes puzzling owing to the fact as you are well aware that they each communicate with the nasal cavities just under the middle turbinal at a place designated anatomically as the infundibulum, the anterior portion of which marks the opening to the maxillary sinus through the hiatus maxillaris. Within the last year or two the differential diagnosis with regard to the antrum has often been made with what is called the intra-illuminating process, which consists in placing a small electric lamp in the mouth and afterwards firmly closing the lips. If pus or a tumor occupy one or the other of the antra, the dullness of illumination exhibited on the affected side constitutes a criterion. But I am constrained to say that according to my own experience this plan is far from being reliable. I still think that the method advocated years ago by Spencer Watson and others is much more reliable. This method consists in first washing out the nasal passages with a solution of salt and water, or borax and water, and then tilting the head of the patient well over toward the unaffected side; after the head has been held in this position for from three to five minutes the nasal passages are again quickly illuminated and examined; if pus is seen to be issuing from the neighborhood of the middle turbinated bone or above it or toward the naso-pharynx, the conclusion that the maxillary sinus is the seat of suppurative inflammation will be a fair one. In cases of suspected purulent ethmoiditis the nasal cavities are to be washed out in the same manner, and after an interval of from three to four minutes a pledget of cotton wound on the end of a probe is passed up to the top or attic of the nasal passage, moved from behind forward and withdrawn. If the pledget of cotton becomes daubed with pus by this maneuvre the inference is fair that the ethmoid cells are the seat of suppuration. With regard to the frontal sinus, the localized, dull, persistent and pressing character of the pain will serve to locate this as the seat of disease. The sphenoidal sinus is sel-

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dom affected alone. Sometimes a thorough examination of the nasal passages with a probe may lead to the localization of the seat of disease, especially if the bone be involved, although it must not be forgotten that a sense of roughness conveyed through the probe from the ethmoid plate or anywhere along the attic of the nasal chambers is not always a positive indication of diseased bone, for normally there are in this region small fibrous papillae which may convey through the touch of the probe the sensation of eroded bones where none exist; this is especially true in some persons, therefore great circumspection is necessary.

It is obvious that the treatment of these conditions, when chronic, must be principally of a surgical nature, although we frequently meet with acute and sub-acute inflammations of the ethmoid cells and sinuses and middle turbinals which run a more or less prolonged course ending in recovery without the necessity of any operative procedure. This is also true of the antrum, although from its conformation, dependent position and the location of its outlet it is perhaps less likely to recover without being punctured. I desire, however, to enter a protest against the fashion so prevalent nowadays of extirpating the middle turbinals, or drilling into the ethmoidal labyrinth, or puncturing the antrum whenever a little pus is observed in the nasal secretion, or whenever a little roughness is felt by the probe at the attic of or along the nasal chambers. This practice it seems to me is reprehensible. Indeed when we consider the delicate anatomic and physiologic status of the upper part of the nasal chambers, the ethmoidal labyrinth, the antrum and the turbinals, we should always hesitate before inflicting upon these structures any severe injury. The olfactory nerves, for instance, in the former situation, and their proximate relation with the brain ought to act as a deterriment against officious interference, while the same may be said regarding the frontal sinus, and even the antrum, notwithstanding the consequences of opening the latter through an alveolar space are much less significant. Opening the antrum through the hiatus maxillaris, however, may prove very detrimental because of the subsequent irritation produced by

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the drizzling in and retention of nasal secretion; besides this, the cavity can never be so well drained and cleansed as through an opening made at an alveolus or in the canine fossa of the superior maxilla, the most depending part. In chronic suppurative ethmoiditis the treatment should consist for a time of thoroughly cleansing the parts daily with some alkaline antiseptic solution such as borax alone or with carbolic acid or boric acid, and the projection upon the part once or twice daily of iodoform, aristol, europhen, naphthaline, or some antiseptic powder. Should the middle turbinated bone, which is intimately connected with the ethmoid plate, be enlarged or so deformed as to pen up the secretions, then the crest of the bone may be removed either by cutting pliers, the saw or the drill, and a free opening thus made through the nasal passage, after which the treatment may be carried out as before. But if permanent relief does not follow this procedure in the course of three or four weeks then an opening should be made through the cribriform plate into either the anterior or posterior ethmoid labyrinth, preferably by the drill (for in my opinion the chisel should never be used in this locality). In introducing the drill for this purpose great care should be taken not to wound unnecessarily the olfactory filaments by scraping against the perpendicular plate of the septum, nor to open the frontal sinus or drill into the sphenoid bone. Care should also be taken not to tear the opposite side least a troublesome synechia form afterwards. Besides unnecessary and alarming hemorrhage may result from too much injury. When exaggerated deviations of the septum, or an unusually large superior turbinated bone be present, these irregularities must be removed before any operation can be properly done upon the ethmoid cells. The direction of the drill too and the permanence of the force used are important points for watchfulness lest unintended injury be done to adjacent parts. I have seen one case where the orbit had been perforated; another where the chisel had gone clear through the side of the nose to the skin; another case where the vomer had been perforated and an opening made into the opposite side, tearing the olfactory filaments without ever

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touching the ethmoid plate at all; another case where the frontal sinus was opened unintentionally with a chisel causing subsequently great inflammation; and another where the sphenoid had been drilled into. In operating upon the antrum as before mentioned, the site of election in my opinion should be the alveoli of the bicuspid or the first molar tooth, although other alveoli may be selected, especially if unoccupied by teeth. When the canine fossa is selected for the opening, care must be taken not to perforate the infraorbital foramen, inasmuch as disastrous neuritis and other consequences may follow. I have seen one case where this was accidentally done and the patient obliged subsequently to undergo a severe operation for the destruction of the nerve and the restoration of the function of the eye. In cases of tumors of the antrum or of the frontal sinuses, of course nothing short of wide opening and complete extirpation will suffice. But even in such cases I believe that the most radical conservatism, if I may be allowed the term, should be exercised. The practice of opening the side cavities for the relief of every case of atrophic rhinitis ought to be discountenanced, for the remote results are of little value in curing the disease, and extremely troublesome to the patient.

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CARCINOMA AND SARCOMA OF THE NOSE.

D. MILTON GREENE, M. D.,

Grand Rapids.

Malignant disease having its origin in the nose is sufficiently rare to justify a report of the following case. Grynfeldt says that notwithstanding the fact that the nasal mucous membrane is the most frequent seat of inflammation, malignant disease of nasal origin is extremely rare. Cornil and Ranvier have maintained that there is no well authenticated case of primary carcinoma of the nose. About forty cases have been reported as carcinoma. Of these only a few were subjected to microscopic examination. The diagnosis in all the other cases was made from the gross appearance and clinical history. Sarcoma of the nasal passage is almost as rare as carcinoma, judging from reported cases.

So far as I have been able to learn there is no recorded case of a mixed growth of viz: carcinoma and sarcoma of the nose; indeed it has been stated by some pathologists that sarcoma and carcinoma very rarely, if ever, are found together anywhere, while others say they do occur together, but the cases are extremely rare. It is not my purpose in this brief paper to further review the literature of the subject of malignant growth in the nasal passages, but to give the history of a case in point.

Mrs. K., aged 32, referred to me by Dr. C. M. Kelley, presented the following history: Has had catarrh for years with some offensive discharge from her nose for which she had been treated and the symptoms had subsided and she had been quite free from catarrhal trouble for some years. For the past eight months she has had nasal stenosis, especially on

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the right side, together with pain and some discharge. For three weeks past the pain has increased, becoming more constant. In the past three or four weeks the pain has been continuous and has changed in location from the bridge of the nose and forehead, where it had formerly been, to the right eye, cheek, temple and ear. She has had epistaxis frequently.

Upon examination I could see no external signs of disease, no exophthalmos or displacement of the eyes. Could feel no growth in the orbit. The left nasal cavity was quite free. The post nasal space and vault of the pharynx were free from growth and swelling. The hard and soft palate were of normal color and free from inflammation. In the right nasal cavity I found the middle and lower turbinated bodies swollen, hard and infiltrated, and they did not contract under the local application of a 6 per cent. solution of cocaine. The middle turbinated body was the seat of an ulcer which looked macroscopically like an epithelioma, having the same appearance presented by epithelioma of the lip. Protruding from between the middle and lower turbinated bodies in the region of the ostia maxilare Et. ethmoidea there was a growth as large as half of a small almond. The ulcerated turbinated covering bled freely when touched with a probe, but the growth which I have described did not bleed so readily. It looked like a vascular polyp.

The growth was grasped with a pair of small forceps, but being friable it broke down and left a large bleeding base. I had been impressed from the history of the case, notably the pain and bleeding, that the disease was malignant, but was more convinced after attempting the removal of the growth. I then inquired into the family history and found that her father had died of cancer of the stomach.

The patient went to her home. I informed Dr. Kelley and the husband of what I had found and that I believed the disease malignant. I saw the patient twice at her home subsequently on account of pain and continued bleeding. Several physicians were called to see the case and gave various opinions, mostly to the effect that the pain was caused by the

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removal of the growth. Nearly three months later, as she had been steadily growing worse, I was recalled to the case and found the growth in the nose larger than when I first saw her. There was exophthalmos of the right eye, which was displaced markedly to the temporal side of the orbit. A growth could then be felt in the orbit in the region of the ethmoid cells. It was quite evident that the growth did not originate in the antrum of Highmore, as in such case the eye would have been displaced upward. They wanted an operation which I consented to do after telling them of the liability to return of the disease.

On January 27th I operated by making an incision one inch long at the lower border of the supra-orbital ridge extending to the nasal bone, then carried a second incision vertically from this point to the inner side of the lachrymal sac, thereby exposing the growth. Passing my finger into the orbit and using it for a guide, I passed a sharp curette through the nose and scraped away the growth together with the middle turbinated body, the ethmoid cells and a portion of the sphenoid bone which had been softened by the disease. There was quite a sharp hemorrhage. Some shock followed the operation from which she recovered. The external wound healed quite promptly except a very small hole. The temperature raised to 100 degrees F. but once; the remainder of the time it was normal.

The patient was relieved of her pain for about one month when the growth showed signs of returning. The pain, which before the operation had been severe and constant, returned with the return of the growth and the patient begged for another operation which I did on February 28th. This time I operated entirely through the nose and scraped away the remaining turbinated bodies and a portion of the ethmoid, together with all I could get of the diseased tissue. The shock was extreme and she came near dying on the table, but she finally recovered from the shock and went on as she did after the first operation.

The disease promptly returned and she died a month later. Before death she was delirious for three days and became

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almost completely blind. The growth was examined by three pathologists, Dr. George Baert, Dr. J. B. Whinnery and an association of pathologists in Chicago, neither knowing what the other had found. Each and all found well mixed celled sarcoma and carcinoma.

The autopsy, which included only the brain and interior of the skull, was conducted by Dr. Sharp. The brain was fairly healthy; the dura was somewhat inflamed; the right orbital plate of the frontal bone was entirely absorbed away, and the left orbital plate of the frontal bone was softened. The immediate cause of death was not ascertained.

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DISCUSSION OF THE TWO PRECEDING PAPERS.

DR. FROTHINGHAM, Detroit: Mr. President: I wish to emphasize a few points made by the authors of the papers just read. Most of us, I think, have had some little experience in these subjects. I was interested in the papers, and I would say that so far as my experience goes I would like to emphasize one point especially that was made in Dr. Shurly's paper. Perhaps he may not be able to get his term "Radical Conservatism" coined, but we should insist on the exercise of reasonable conservatism in the management of these cases. Some are inclined to draw hard and fast rules, and the one which he mentions and condemns, that if we have pus discharged from the nose then the disease is one that involves some of the sinuses and calls for an operation, is one of these hard and fast rules not sustained by experience. Some never admit of exceptions in making statements. I remember one instance of a quite noted ophthalmologist who asserted that all cases of iritis of constitutional origin are due to syphilis, and certainly that was drawing the line hard and fast. One pernicious effect of such sweeping assertions is to lead to operations that are unjustifiable, and this region is one of the most difficult to operate in. It is necessary for one to practice hours and hours upon the cadaver to acquire sufficient skill in his operations to be sure that he is doing them properly. The anatomy here varies somewhat as it does in other regions, and the man who without sufficient practice undertakes to drill or to chisel into any of these cavities will be liable to meet with the same accidents that the doctor quoted here, and probably these are only a few that he is cognizant of either from personal observation or perusal of the literature of the subject. Now these operations are never to be undertaken, in my opinion, without very decided indications, because the reaction from them is less controllable than in many other operations, and the inflammatory reaction that

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results from the operation is liable to extend into regions where it is impossible to combat it successfully. I know one instance of a patient, a business man of Detroit, who had an affection of one of the nasal cavities. His mother and sisters resided in Berlin and he went there for treatment. He employed one of the best specialists that he could employ, a Professor in the University of Berlin, who made an operation. The inflammation from that operation extended into the middle ear in which there was no disease before, resulting in complete destruction of the drum membrane and an otorrhœa which became chronic and was incurable by any treatment that he could get there or afterwards. Finally the patient had an attack of fever and delirium and his physician consulted two of the best specialists in nervous diseases in the city of New York, where the patient then resided. They thought he had cerebral abcess from extension of the aural disease and called one of the most eminent aurists in consultation. He coincided with them, that from the symptoms he had abscess of the brain as the result of this chronic disease of the ear. He operated and found no pus in the brain. The patient nearly died on the table, was dead in two days. The post-mortem showed that there was no abscess in the brain, but that he had incipient tuberculosis, perhaps the result of this chronic discharge. Now there is a case where a man evidently lost his life from the result of an operation in this region even though under the care of the best men. So I contend these operations should not be rashly undertaken. They should only be performed when there is a clear indication for them.

Now, in regard to the other points, I must say that the paper expresses them better than I could, for I am not engaged in this line of practice, but I wish to emphasize that one point. And I think that general practitioners who have these cases first in charge, and who recommend them to specialists, should stand by their patients and exercise this conservatism and see that no rash operation is undertaken in this region.

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Now as regards the paper that our Chairman has read to us, and his quoted cases, I wish to say that I have had a little experience with those malignant diseases, and that I think is all that any one has had, because, fortunately, malignant disease of the ethmoid is rare, and I do not think that either carcinoma or sarcoma when occurring there is curable. The region in which it occurs, the nature of the disease, as has been proved by the study of it in other parts, is such as to forbid our expecting to cure it when occurring in this region. The disease has a great tendency to recur. It requires, for the least chance of success, that you remove not only the morbid growth, but that you remove the surrounding tissues far enough away from it to be sure that you have removed all that may contain any malignant cells. They show a tendency to local return, sarcoma especially. It so often returns in the same place that it seems almost as though it was a local malignancy, although it is known to be general and have a tendency to involve distant parts. It has, however, a great tendency to recur in the same region, even when you can remove it as you think thoroughly.

Sarcoma cannot, however, be completely removed in this region when it has developed to any considerable sixe. I remember one case I had about 25 years ago. A sarcoma appeared in the inner part of the orbit. The patient was a child. I was able to get free access to it and removed the tumor completely and apparently there was no part of it left. But where the frontal bone articulates with the os-planum of the ethmoid there was a wide ribbon-like band of firm connective tissue extending from the tumor to the fissure to which it seemed to be attached. It was cut off smoothly close to the bone. Perhaps that connective tissue contained some malignant cells. At any rate a morbid growth soon appeared apparently commencing in the ethmoid cells. It grew rapidly and distorted the face. It extended downward into the nostrils and outward into the orbit, pushing the eye to one side. I made an operation for its removal. I think Dr. Maclean will remember the case for he was with me in this last operation. I removed most of the growth. It involved

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all of the ethmoid cells and extended into and filled the antrum of Highmore, and in its removal I removed all of the ethmoid bone except the cribriform plate. But the diseased portion could not be completely removed any more than in the case just reported. It soon returned and grew rapidly to great size and in a few months destroyed the patient. I think we can hardly expect that either of these forms of growth occurring in this bone can be removed with success, and yet there are cases where we are inclined to operate as I did. My operation did no good. I am inclined to think the doctor's operation did no good, but it was an effort to succor the patient from an inevitable death. But we have to be prepared to look with disappointment in those cases until something further has been discovered by which we may more completely destroy the cells of malignant growth without injuring the healthy tissue; not to simply take off what appears, but to remove all the malignant cells and to extirpate the growth perfectly.

DR. GREENE, Grand Rapids: I would like to say a word in the discussion of Dr. Shurly's paper in reference to opening the antrum of Highmore. We well know that operations on the antrum of Highmore for empyema, no matter what operation we do, in the great majority of cases are not successful, that is, the cases do not get well and chronic discharge is left. I have opened a great number. I have opened them through the aveolus; I have opened them from the canine fossa; I have opened them through the nose and in various ways, but it is a rule that they do not recover completely. I must say that the best success I have ever had in cases of empyema of the antrum was in the most severe cases, to all appearances, that I have treated, and that the operation selected was opening the antrum through the canine fossa and at the same time from the nasal passage, so as to get free drainage and make it possible to irrigate the antrum thoroughly. In one case which was seen by many of the physicians present, there was not only suppuration of the antrum of Highmore, but also pus in the frontal sinus and abscess in the orbit, producing most extreme exophthalmus. It was

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necessary to make an incision above and below the eye, extending deep into the orbit, to let out a large quantity of pus. In this case, after having opened the frontal sinus, I opened the antrum of Highmore. This young man (about twenty-one years of age) made a very perfect recovery, though even his life was dispaired of, he was in such bad condition.

In other cases I have had better resnlts, where the pus was confined to the antrum of Highmore, by opening, not in one place, but in both; that is, from the nasal passage into the antrum and also from the canine fossa, passing the irrigating tube first in one opening and then the other so as to wash out the antrum both ways. In this way I think I have been able to get the antrum perfectly clean. I believe imperfect drainage is the secret of non-success in these cases many times, and perfect drainage the secret of success.

The doctor speaks of opening the sphenoid cells as "a very dangerous operation." I have heard of many cases, as he says, where the sphenoid cells have been opened, but I believe it is a very rare operation. It is an operation surely attended with very great danger, except in the hands of experts, because one who is not skilled in doing operations "in the dark," is liable to push the drill through both plates of bone into the brain and set up meningitis. There is very great danger in doing this operation, and therefore I would emphasize what Dr. Shurly has said. I think great conservatism in opening any of the antra should be practiced. I think the doctors should be very conservative in all operations but I do not believe in carrying conservatism to neglect. Conservatism is a good thing if not carried to far, but if so, it is capable of doing as much harm as being too radical. I say this because I know that abscess of the orbit very frequently results from abscess of the antrum of Highmore. We get that complication by neglect, and then we have a very much worse state of affairs than we had before, and one which is a menace to life and more dangerous to the patient than the operation of opening the antra.

I believe that proper treatment of the nose, by removing hypertrophies of the turbinated bodies in some surgical way,

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will open up the passage from the antra into the nose, and sometimes a case will get well from such treatment, that is, if there is no diseased tissue or bone in the antra. In acute cases I think we may many times get relief in that way, and a cure in some of them.

I want to say in relation to the operation for carcinoma which Dr. Frothingham spoke of, that there was benefit derived from the operation by relieving the patient of pain. Such relief was due the patient, and should always be a consideration I think with doctors in deciding whether or not an operation should be performed. The operation gave her a month's relief from the most terrible agony a person could possibly endure. Neither morphine nor any drug would relieve her pain. She was treated as heroically as was safe, and still she suffered the most intense pain. She was relieved from that pain by the operation, and so much relieved for one month, that when the growth recurred she begged for a second operation, even when told she might die on the table ; she was told that many of these cases, where operations are repeated, die on the table. She replied, "I don't care ; I want to be relieved of this pain. If I die on the table, all right ; I will take my chances."

DR. KING, Grand Rapids: I was unfortunate in being so late as to hear only the latter part of Dr. Shurly's able paper. When Dr. Shurly says anything it is always something valuable for us all to listen to. In regard to the tearing away of the middle turbinated body, I have seen one very unfortunate result of that operation, the middle turbinated body having been destroyed either by the drill, the saw or the forceps, I could not ascertain which, for the relief of suppurating ethmoiditis; the opening not only into the ethmoidal cells but into the antrum was made so large that the trouble of which Dr. Shurly speaks precluded the possibility of ever curing the disease or stopping the suppuration, even after secondary operation through the alveolar process. A large opening from the nares into any of the lateral cavities seems to me to be undesirable unless it is in the ethmoidal cells, and I confess in cases of suppurating ethmoiditis which I had

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seen I have not the hardihood to attempt the operation through the nares. Two cases in my recollection, treated conservatively, one in the Manhattan Eye and Ear Hospital and one in the Post Graduate Throat Clinic, recovered. Now one point which our chairman spoke of in regard to the danger of going through both plates of the sphenoidal sinus and getting at the brain—that it seems to me is an accident which is very unlikely to occur. I remember hearing a discussion as to that point in Rochester at the meeting of the American Laryngological Society a year ago in which it was pretty clearly proven that in about ninety-nine cases out of a hundred the sphenoidal sinus was never reached by the operator. It is an ungainly place to get at, and I do not think that the dangers of going through both plates are very great. The "danger," as Dr. Shurly just remarked to me, would be from not reaching the sphenoidal sinus at all.

DR. TAPPEY, Detroit: I was very much interested in the subject of neuralgia as spoken of by Dr. Shurly in his paper in connection with the diseases of the nostrils and of the cavities contiguous. I myself have had some personal experience in that line, having had for many years attacks of neuralgia which were very obstinate indeed, lasting for several years. The neuralgia was entirely unaffected by any medicines that were given me from time to time by my friends in the profession, and it was only four years ago when Dr. Shurly discovered some polypi in the nostril and removed them thoroughly that I was relieved and relieved permanently, and one curious feature of these neuralgias to my mind is their remittent or intermittent character. The attacks that I had in my own case and those which I have seen in others have been of a nature that would suggest to one's mind, I think, malarial poison. The pain came on at a certain hour in the morning for instance, or at a certain hour during the day, and increased in severity until a certain time, then gradually receded and disappeared entirely. It would come on about 9 o'clock in the morning, and gradually increase in severity until about 2 o'clock in the afternoon I would be almost distracted for an hour or two; it would then recede

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and by 8 o'clock at night I would be entirely free and have a good night's rest. And I have noticed that same feature in the cases of other people. I do not understand why these neuralgias excited by catarrhal affections should be of this nature. I always, whenever I find a neuralgia about the head or face now, examine the nostrils the first thing. And if I find any disease, refer them to a specialist in that line.

In regard to your own paper, Mr. Chairman, when I saw your title on the program, I put in my pocket a photograph of a case which I had to deal with which is something similar to your own. The eye-ball you will see was pushed forward and outwards. The growth in the nostril had destroyed by absorption the nasal bones, or the nasal bone on one side, and it extended backwards in the neighborhood of the sphenoid and ethmoid bones. This case was referred to me by a Canadian practitioner, Dr. Hobley of Amherstburg, who had had charge of the case for several years. He himself had repeatedly removed large masses through the nostril. When he brought the patient to me I told him that I had not much hope of a permanent cure, but if he wished me to do so I would attempt its removal, and I did so by making an incision from the inner angle of the eye extending about an inch and a half along the side of the nose towards the end of the nose. I was able to get directly into the nostril, for as I say the nasal bone was entirely absorbed, and I removed the growth by means of the Volkmann spoon. I was very much surprised at the size. I think the mass, which was soft, was perhaps as large as a medium-sized orange. The exact nature of the growth I did not determine. I was convinced of its malignant nature of course, but whether sarcoma or carcinoma I did not know. I kept using the Volkmann spoon until I removed a slight shaving of brain tissue and then I thought it was time to stop. The base of the skull had been destroyed as well as the nasal bone. However, the patient recovered from the effects of this operation and after being in the hospital for a month, or about that time, was dismissed and went to her home and lived for six or eight months afterwards. I have since heard of her death.

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I notice in reading up the literature of the subject that recurrent fibroid growths are very common, even of very large size, but that malignant growths are very rare, as you stated. However, as I say, I was convinced in my own mind from the clinical history of this case that it was a malignant growth.

DR. STRANGWAYS: Mr. President: I know there are a number of papers to be read before this session closes, and that the time for discussion is very limited, so I will omit most of the points I might wish to discuss.

The first I will refer to is that relating to operating if pus escapes from the nares. Dr. Frothingham understood Dr. Shurly to say if pus was escaping from the nares we should operate at once, whereas I understood him to say we should not. I think he mentioned a month as the time we should allow to pass before operating, and that during this month we should use cleansing washes and insufflate powders, such as iodoform, aristol, etc., and if at the end of the month the amount of pus was not materially lessened, we should open the offending cavity. My experience teaches me that many of the cases where pus escapes from the nares can be cured by proper treatment without making any surgical opening into the accessory cavities, as where we find a foreign body in the nares.

The next point to which I wish to refer is that relating to operations upon the middle turbinateds. Perhaps I did not fully understand Dr. Shurly, though I was deeply interested and paid close attention. If not by direct statement then by inference he seemed to condemn the use of the snare. I operate very frequently on the middle turbinateds, using the snare many times a week, and my experience has been entirely pleasant. To me the snare is the ideal instrument for operating on the middle turbinateds for removing diseased parts.

The next point I wish to discuss is Dr. Shurly's recommendation of the curette for removing soft tissues from the middle turbinateds. The shape and position of these bones make it very difficult to use the curette with success, as these soft tissues can slip away from the instrument when the first

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effort is made and after that the hemorrhage interferes. I prefer using my snare with a soft wire, which is easily made to encircle such tissues, and if it does not remove the entire base a little chromic acid completes the eradication.

Again, the rule given by the doctor for locating the ethmoidal cells was not satisfactory to me. He spoke of the line of the nose being a good guide. My experience teaches me that the external as well as the internal lines of noses vary very much and are poor guides. I do not think sufficient stress was placed upon the thorough comprehending of the anatômical parts by inspection and gentle probing before we operate. We should have a good light, easy positions, and everything necessary to determine what we see when we look in. Very often the diseased sides have narrow nares. In such cases the other nares are likely to be very wide, and we can gain much useful information by locating the ethmoidal cells in the healthy side, knowing that we are almost certain to find them directly opposite in the diseased side.

I will not occupy any more of your time since so many other papers are to be read and discussed.

In concluding, I wish to say I was very much pleased with Dr. Shurly's paper, and am very glad I have had the good fortune to hear it, especially as at present I am treating a case that gives me an immense amount of trouble. Up to the present I have been able to diagnose and demonstrate in this case suppurative disease of both antrums, left frontal sinus and both ethmoidal bodies, and before I finish I expect to be able to remove pus from all the other accessory cavities.

DR. FROTHINGHAM, Detroit: Before this discussion closes I wish to explain one remark I made. I did not intend by the remark that it was probable that neither the doctor or I benefitted the patient much to criticise either the doctor's operation or my own. I did not mean it as condemning the operation either. I think the rule should be to attempt removal, where this growth commences as we suspect in the ethmoid, before it is very large. If it begins there we cannot at first determine whether it is malignant or not, only judge from certain symptoms. We should, I think, make an effort

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to remove it to determine as to its character, and we should remove it as early as practicable, and we should also go as far as we can safely in case it cannot be completely removed. Then if it returns we may know that there is nothing further to be done. Now in my case I operated the second time to remove the growth which returned after removal of one I had examined and determined to be a sarcoma. So when it returned in this large form I had knowledge of its malignancy from the evidence that I already had, and yet I felt justified, and would feel justified again in undertaking such an operation. I operated to determine whether or not it could be removed completely, and found that it went to the base of the brain. I removed all the ethmoid bone except the cribiform plate and removed all that was possible. This was a final effort by which I determined that nothing further could be safely attempted. It is as I said a last effort to rescue one from inevitable death, and as such is, under these circumstances, justifiable.

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SOME PROFESSIONAL EXPERIENCES AT HOME AND ABROAD WITH PATHOLOGICAL SPECIMENS.

DONALD MACLEAN, M. D.,

Detroit.

Through the courtesy of the profession of Salt Lake City, Utah, during a brief visit to my brother, Dr. A. C. Maclean of that place, in February and March last, I am able to present in the following brief paper a few practical experiences and observations which I venture to hope may prove interesting to this section.

On the evening of the second day of my arrival at the metropolis of the wonderful and historic valley of the great Salt Lake I was honored with an invitation to the semi-monthly meeting of the Utah Medical Society, which I accepted. It was a large meeting, but I am told not unusually so. The paper of the evening, by Dr. A. C. Maclean, consisted of a report of a number of interesting and successful cases in his own recent experience, including lithotomy, appendicitis, gall stones, &c., with specimens.

The discussions were in my judgment very able and instructive, as much so as those of any association I have ever had the pleasure of attending.

This is hardly the time or the place to undertake a topographical or climatological account of Salt Lake City, but I may be permitted to state in passing my opinion that if there is a spot anywhere in this or any other land which possesses all the requirements for an ideal health resort, if there is a spot anywhere whose climate, soil, scenery and surroundings generally are suited to the accomplishment of phenomenal re-

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sults in the treatment of medical and surgical cases, it is this city of Salt Lake.

Possibly the brief statistics of my own operative efforts there when presented to you, as they will be in a few moments, may lead you to think that they fall somewhat short of constituting a practical endorsement of the eulogistic opinion which I have just expressed. But "one swallow does not make a summer," and, at least, an occasional disappointment must be acknowledged as the manifest destiny of every individual who strives to save life or relieve suffering by the use of surgical methods. Not only so, but the cases I have to present for your consideration do not belong to the class in which the articles of climate and surroundings could be justly charged with any appreciable share of responsibility.

Before I had been many hours an inmate of my brother's home I was asked by Dr. C. E. Bower to see with him the following case, which I will describe as briefly as possible:

CASE 1. C. M. M., age 22 months, a little girl, the only child of perfectly healthy parents, boasting an excellent family history. The child had been quite well in all respects until within a period of six months. During these six months she had failed a good deal in health and strength and had become much emaciated. A gradual but pretty rapid enlargement of the abdomen had appeared until the walls of that cavity were distended to their utmost capacity by an intra-abdominal growth of some sort. The latter, on careful investigation under chloroform, appeared to be obscurely cystic, and we ultimately arrived at a diagnosis of cystic kidney (left side) with an unpleasant suspicion of a sarcomatous origin. An exhaustive consultation and consideration of the case, together with a candid presentation of our diagnosis and apprehensions to the parents, resulted in my being urged to give the poor little patient the slim but only chance for her life which an abdominal nephrectomy afforded. The operation was performed on the morning of March 9th, in the elegantly and completely appointed operating room of St. Mark's Hospital, a very attractive institution affording accomodation for at least one hundred patients. Drs. Bower, Hughes and A. C.

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Maclean afforded me most efficient assistance. Chloroform was administered very carefully by the resident physician of the hospital, and we had also the active and intelligent aid of a staff of female trained nurses.

The tumor was found to consist mainly of an immense cyst which extended from the diaphragm to the floor of the pelvis. Its starting point was distinctly traced to the suprarenal capsule. Intestinal and mesenteric as well as parietal adhesions were very extensive and tedious to deal with; but the most dangerous complication was the existence in the cyst of an immense collection of fluid composed very largely of blood. The evacuation of this fluid by the opening of the cyst was followed instantaneously by a very alarming amount of shock. The tumor was removed entirely, the hemorrhage was arrested, the abdominal cavity douched with very hot water, and the incision closed with all possible expedition. Everyone present, doctors, nurses and friends, felt that a supreme effort had in all earnestness and good faith been made to save this poor little life from rapid and painful destruction. Unfortunately we were all very soon convinced that the effort had been made in vain so far as saving the life was concerned, as she only continued to breathe for a few minutes after having been removed from the operating table, notwithstanding the fact that every method of stimulation had been used from the beginning to the end of the operation.

I here present the specimen, or, at least, the essential portion thereof, from which the fundamental structure of the morbid growth will be readily recognized, and microscopic examinations confirms the view originally adopted on this point.

While deeply regretting the fatal result, I have every reason to believe that no one in any way connected with the case felt otherwise than thankful that the attempt had been made. The age and condition of the little patient, together with the enormous size and the pathological character of the tumor and the extensive complications, will, I think, be recognized as a perfectly satisfactory explanation of the failure to achieve success in this case. Nephrectomy in children of tender age

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is seldom demanded except for sarcoma, and in my opinion the ratio of even partial, *i. e.* temporary success will always be very small. And still the temptation to try to save the young life or even temporarily afford relief of suffering in this class of cases will always, as in the present instance, be extremely hard to resist.

As a sort of offset to this unsuccessful effort in the department of renal surgery I venture to report here two additions to the list of cases which I have in times past placed on record.

CASE 2. A. C. C., age 36, male. Had suffered all the long and painful train of symptoms which pertain to suppuration of the male genito-urinary tract for a period of three years before coming into my hands. My friend, Dr. Imrie, had given him his best attention for nearly a year and at last was kind enough to ask me to see him. He was a stout, obese man and had generally enjoyed good health previously to his present ailment. I found him suffering very severe pain, especially in the region of the left kidney, with night sweats, chills and great prostration. He had lost weight to the extent of forty pounds. I first examined him, along with Dr. Imrie, on March 14, 1894, and on March 16th, assisted by Drs. Tibbals and Imrie, I removed the left kidney in toto. The peculiar short stout conformation of the patient made the operation more than ordinarily difficult. I found it impossible to ligate the pedicle with perfect safety in the depth of the cavity, and therefore it was additionally secured by long and strong catch forceps which were removed without further trouble at the end of thirty hours. No kidney tissue was left. The recovery was complete and the patient has enjoyed perfect health for many months, and has since regained all his lost flesh with a reasonable rate of interest in addition.

In further illustration of this subject of kidney surgery I wish to add briefly the following cases:

CASE 3. Mrs. B., age 26, Detroit. This patient had suffered for years from severe constitutional symptoms, fever, emaciation, loss of appetite, chills, etc., together with obscure pains in the back. Tuberculosis was suspected and a very

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serious view of her case was taken by her physicians and friends. A day or two prior to my departure for Salt Lake City, in February last, I was asked to see her, and on examination, suspecting suppuration of the kidney, I had her removed to the Woman's Hospital in Detroit. Next day, with the assistance of Drs. F. M. Brady, Florence Huson and F. B. Tibbals I made a free incision into the kidney, having previously positively demonstrated the presence of pus with a large sized exploring needle. An immense quantity of pus was evacuated and on introducing my finger into the abscess cavity I at once detected and removed this large sized calculus. (Specimen exhibited).

On further examination I was fully convinced that notwithstanding the immense abscess cavity a considerable amount of sound kidney structure still existed. Furthermore, my investigations served to impress the belief that adhesions existed of sufficient extent and importance to render entire removal of the kidney in the exhausted condition of the patient an unduly hazardous procedure. The cavity was therefore thoroughly douched and then packed with iodoform gauze. Next day, leaving her to the efficient care of Dr. Brady, I took my departure for the west. On my return, six weeks later, I found our patient safe and well in her own home with an addition to her former weight of something over twenty-five pounds.

The two latter cases seem to me to afford and impress at least one important lesson, namely: When it happens that the kidney is the seat of our endeavors to carry out the fundamental law of surgery to evacute pus wherever and whenever it is possible, we have at least two widely different courses to choose between, viz: Nephrotomy and Nephrectomy. And while the latter is more radical, and if successful, much the more satisfactory procedure, still the former by reason of its vastly greater ease, simplicity and safety must in the large majority of cases be the operation of our choice. But the flight of time prevents any further study of these cases and their lessons on this occasion.

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I now wish to present a pathological specimen of considerable surgical interest obtained as a part of the results of an operation performed by me at St. Mark's Hospital in Salt Lake City during my stay in that delightful vicinity, and the following history will explain the pathological specimen, and the specimen will explain the case.

CASE 4. J. H., age 23. About nine months ago the patient received a severe injury to his right elbow joint. The most serious feature of his injury consisted in a transverse fracture of the olecranon process, with very extensive contusion of the surrounding soft parts. After a long and very judicious series of efforts, including fixation with silver wire, the olecranon refused to unite. More than that, when my attention was called to the case a very bad state of affairs obtained in the region of the injured articulation. Pus had burrowed in every direction, great swelling extended over the lower third of the arm and over the upper third of the forearm. The patient suffered intense pain at all times and especially during the terrible ordeal of the daily dressing. His general health had suffered severely and he was greatly emaciated. On the day following that on which I first saw him, by the request of his attending surgeon Dr. Hughes, I performed resection of the elbow joint, and thereby obtained the specimen here exhibited. The relief to all the distressing symptoms, local and general, was immediate, and the progress towards complete recovery has been uninterrupted.

You ask me what is meant by the phrase "*complete* recovery?" I reply *perfect flexion*, *extension*, *pronation* and *supination*, with complete restoration of the strength of the arm. Anything short of this result cannot be classified as *successful*. In my own experience I am happy to say that I have been able to record many cases of complete success, and I have exhibited several to this association. At the same time it must be admitted that a stray case here and there in my practice has had to go into the column headed "*Partial Success*," and of these more or less of anchylosis and consequent limitation of movements represented the extent of the failure. The indifference or timidity of the patients in

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the matter of the after treatment has usually been responsible for whatever shortcoming we were compelled to regret in the ultimate result.

Just a word as to the after treatment, and I consider it a most important word. It is this: *Commence passive movements at the earliest possible moment, and not under any circumstances later than the third day after operation.* And a last word, not less important: *Avoid all complicated and oppressive splints and dressings*, and trust to the most simple, elementary and comfortable.

CASE 5. Mrs. C., age 29; the mother of four children; family history good. I venture to trespass a little further upon your patience to report this case (which shall be done with all possible brevity and conciseness) because it is in my opinion a most complete one (especially from a pathological standpoint). Mrs. C. had for a few months been suffering from a pretty extensive complication of morbid conditions, and had been during that time under the care, or, at any rate, the advice of a former pupil of mine, Dr. Jas. E. Hosmer, of Ogden, Utah, as well as that of her regular attendant Dr. Leason, of Dillon, Montana.

My visit to Salt Lake City led to her being sent to St. Mark's Hospital from her home in Montana. I found her suffering from alarming and obscure mental symptoms. She had lost the faculty of speech and for the most of the time seemed to be in a profound stupor. She was unable to walk or even to stand on her feet, and there was also complete paralysis of the sphincters. The history, so far as it could be obtained, was one of pelvic import. On examination I found cervical and perineal lacerations of uncommonly aggravated character associated with prolapsus and ulceration of the rectum.

I and my professional confreres in the case were at a loss to determine whether or not the brain symptoms were direct and central, or whether they might not possibly be reflex in character and dependent upon the aggravated peripheral lesions. After careful consideration we determined to take the more favorable view of the case and give the patient the benefit of the doubt. Consequently, after thorough prelimin-

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ary treatment, I proceeded with the utmost care and thoroughness to repair the lesions of the uterus, the perineum and the rectum. The operation was pretty well borne, although for the first thirty hours or so the patient lay in a pretty profound stupor. After that she roused up and gave every promise of justifying to the full our most sanguine anticipations. She recovered the power of speech, conversed with me intelligently, held out her hand and greeted me cordially every time I entered her room. When the time came for me to terminate my pleasant visit to Salt Lake City I parted with her and her husband with the confident belief that complete success was to be the result of our efforts. I regret to say that in this we were disappointed, notwithstanding the fact that my operations were quite successful. Before long her former brain troubles began to return, and they gradually increased until, despairing of further benefit, she was carried back to her home in Montana. The following excerpt from a letter from Dr. Leason, dated May 27th, definitely closes the history of this remarkable case: "Mrs. C. died on the 16th inst. At the autopsy, in the left hemisphere was found a broken down blood clot in the corpus striotum near the anterior horn."

Reflecting over all the facts of this history, two questions (at least) suggest themselves:

1. Could it be possible that the cerebral hemorrhage had been in any way brought about by the reflex irritation of the peripheral lesions?

2. Whether this was so or not, how is the great improvement in the cerebral symptoms which immediately followed the operation to be explained?

I do not attempt to solve these problems here and now, but I do maintain that the facts of this case furnish a strong argument in favor of the early and complete repair of the lesions of the uterus, perineum and rectum which this patient suffered from.

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Exhibition of Pneumokoinoses Specimens of Lung and Gland.

For full description see page 697, Twentieth Century Practice, volume VI. These specimens were obtained from a miner who died in St. Mark's Hospital of this strange disease.

Numerous additional cases of interest and importance were brought to my notice by former pupils and other friends in Salt Lake City, as well as in Omaha, Denver and other points in the course of my trip, for which, as well as for many evidences of kindness and hospitality from the profession in general, I will never cease to be deeply grateful. Pressure of time, however, prevents any further extension of this paper.

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DISCUSSION OF DR. MACLEAN'S PAPER.

DR. ROBBINS, Detroit: I was particularly interested in the reports of the doctor's cases of kidney surgery, and I want to mention only one point in connection with them, and that is in relation to the performing of the operations of nephrectomy and nephrotomy. The latter is much more often advantageous because it saves all the kidney structure that there is, while we do not know often just the condition of the other kidney; and it seems to me that in this class of cases, whether tubercular kidney or kidney with an abcess from the presence of a stone or other condition where we are liable to operate upon the kidney, in those cases we can get very much advantage and light from the use of the cystoscope. The cystoscope very often, and especially in tubercular kidney, will show the tubercular disease at the mouth of the ureters, and also a decided puffiness and redness around the opening of the ureter. And sometimes, as has been very often reported by Dr. Willy Meyer of New York, who has had a very large experience in this field of observation, the surgeon is prevented from operating and saved from great error by previously making the diagnosis the more sure by the use of the cystoscope. I only want to emphasize that in these kidney troubles we do find very great advantage in making cystoscope examinations.

DR. DODGE, Big Rapids: In reference to the point made by Dr. Robbins, the work done by Dr. Howard Kelly, of Baltimore, I think should not be overlooked. Not only by use of the cystoscope, but by the use of the ureteral catheters in women, can valuable information be gained and important treatment applied in these cases. A catheter may be passed through the ureter to the kidney, and oftentimes the diagnosis of stone made in this way by marks made upon the catheter. In cases of obstruction of the ureter by gravel, it may be dis-

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lodged and washed out through the catheter, and in the case of pus in the pelvis of the kidney, the abscess may be cured in this manner, as has been done a good many times by Dr. Kelly and once by myself in a case recently reported in the *Physician and Surgeon.* I think this proceedure of passing the catheter up the pelvis of the kidney, in the case of women of course, can be done by anyone who is ordinarily skilled. It requires some little practice to be able to pass the catheter into the mouth of the ureter, but anyone who is at all familiar with the use of the forehead mirror, with a good light, may succeed after a reasonable amount of practice, and, in the case of myself, I succeeded with the only case of the kind that I ever had, although I had practiced the procedure somewhat on other cases where it was unnecessary to get at the kidney. The woman had been suffering from chills and there was quite a large tumor on the left side, which I diagnosticated as a swollen kidney. The urine was clear, and on passing the catheter to the pelvis of the kidney—the long rubber catheter invented by Dr. Kelley—there was an escape of about three ounces of pus, and in this pus there were many particles of uric acid the size of the head of a pin. After washing out the pelvis of the kidney several times through these catheters the case was cured and has been well for about six months, so I may say the case was perfectly cured by this procedure.

Dr. Kelley has diagnosticated stone in the kidney by the use of wax-tipped bougies which he passed into the kidneys, the stone making marks on the ends of the bougies. The diagnosis was subsequently confirmed by removing the stones. He has located disease in a kidney and at the same time has demonstrated that the other kidney was sound, and I think that is a very valuable addition to the management of kidney trouble in women.

DR. FULLER, Grand Rapids: Referring to the first case mentioned by Dr. Maclean, I wish to say that as a means of overcoming the effects of shock and hemorrhage during and after an operation, I have often witnessed in our hospital the beneficial result obtained by the intravenous infusion of one, two or three quarts of salt water, a teaspoonful to the quart,

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at a temperature of 120° in sufficient quantity to give a good volume to the pulse. It is a resort which I think will save many lives and in some cases save the surgeon from the disagreeable sensation of having a patient die upon the table or very shortly afterwards.

The brain case reported also interests me very much, on account of the difficulty of distinguishing between a peripheral and central lesion as the cause of the symptoms. The nervous symptoms in this case doubtless depended upon both, but the curious part is that the repair of the peripheral defects brought relief of the cerebral symptoms which were due to the presence of a clot in the brain, and I will offer this explanation: The clot was situated in the anterior part of the internal capsule beneath the center for the movements of the tongue; the center of speech itself being intact but oppressed by the congestive zone around the clot, it was relieved by the hemorrhage shock or chloroform incident to the operation. The symptoms produced by a clot in that particular situation are significant as supporting the theory that the function of the anterior portion of the internal capsule is purely intellectual, transmitting the present environment into consciousness, while the longitudinal commissures of the brain connect the mind with the past. The anterior part of the brain, in which resides the properties of consciousness and judgment, is purely receptive, the occipital and temporal portions retentive, and the central part motor. It follows that a lesion of the anterior portion of the internal capsule would deprive a person of a knowledge of present surroundings and would interfere with the intellectual operations. Upon this theory the situation of the lesion, if central, occurred to me while Dr. Maclean was reading the report. The effects produced by the operation were temporary because of the relapse of the former congestion around the clot.

DR. LEONARD, Detroit: In reference to the last case—whether long continued uterine irritations, or irritation of the sexual organs, would lead to hyperæmia of the brain or not, I can hardly side in the affirmative of the question. I have seen a case where there was something of the same sort of

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cerebral symptoms as the doctor narrates, but I think it was due to something else rather than to uterine irritation. I will narrate the case. It has never been reported, and I presume I am the only doctor that ever saw an actual case of blood clot in the head—embolism—that is with the patient fainting in his office. This was about twelve years ago. A lady had a large fibroid tumor of the uterus which I was treating and which had become reduced over one-half in size. When she visited my office (fortunately that day I made no special operations or application, that is, fortunately for my own conscience sake at least) I made simply an application of the ordinary iodized phenol solution. The lady was in a very cheerful mood because she was near the point of dismissal as I thought from my services, the tumor not being entirely removed but the symptoms relieved. She sat in a large office chair telling me a story of her childhood, and got into the midst of a sentence where she had pickled herring for supper or lunch. Her head began to twist over toward the right side and she fell on my office floor. Her face was as black as a stove pipe and she began vomiting. She was tightly laced and I jumped to her side and with my jack knife cut through her dress stays, thinking there was a clot of some kind in the brain causing the trouble. The patient was unconscious and remained unconscious altogether for a period of about two weeks, and for some weeks longer was confined to her bed. I had the ambulance remove her to her home where I took care of her. At the present day, with the exception of a little fault in her walk and hesitancy in speech, she has completely recovered from the brain trouble and has practically recovered from the uterine fibroid. It is possible and quite probable that there was a setting up of an embolism from my application that caused a stoppage for the time in the brain circulation. I am more inclined to think that is the trouble than that a long continued irritation was the cause. I have always blamed myself as being the real originator of that difficulty in this woman's case, yet at the same time I never have seen any other similar bad symptoms though I have used the same treatment in many such cases (uterine fibroids).

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COMPOUND FRACTURES.

WILLIAM T. DODGE, M. D.

Big Rapids.

The tendency has been manifested during the past few years among many of our friends who are connected with railroads to report all classes of injuries received on the rail under the general heading of "Railroad Surgery." While I have never been connected in any capacity with a railroad, I have nevertheless had much experience during the last six years in this branch of surgery. During that time more than seven hundred cases of injury have been admitted into Mercy Hospital at Big Rapids, and with the treatment of all of them I have had more or less to do. While these cases of injury have ranged all the way from insignificant bruises to severe crushing of the limbs and trunk resulting in death a few hours after admission, the majority have been cases of bruising or crushing of the legs with or without broken bones of all grades of severity. These injuries have been caused generally by the limbs having been caught between two logs, or in some accident on one of the various logging railways of Northern Michigan. I have been unable to recognize any difference in the pathological conditions in a leg crushed between two logs and one crushed between two car couplers, and I think the term "Railroad Surgery" is not properly applied to this class of injuries.

A compound fracture may vary in severity from a small puncture in the skin leading down to an ordinary fracture to a severe crushing of the soft parts with much comminution of the bones. In the less severe injuries the indications of treatment are very plain, and at the present day are usually

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well carried out by all practitioners. They are to clean the injured limb in the surgical sense, apply dressings that will seal the wound and keep the bones in proper position and at rest. Careful watch should be kept of the case, and if, in spite of the aseptic precautions, suppuration ensues, free incisions should at once be made and antiseptic measures adopted. It is in the more severe class of injuries however that the surgeon's judgment is put to the test, and if he attempts to save the limb his patience and perseverance will be severely tried. When called to attend a broken limb, associated with extensive crushing and laceration of the soft parts, the first question to decide is whether an amputation shall be done at once or whether an attempt will be made to save the injured member. I believe that in nearly all cases, except in those in which the tissues are ground to a pulp, amputation should not be immediately performed, but that the patient should be given the benefit of delay. In the apparently hopeless cases the injured limb and surroundings should be cleaned as thoroughly as possible without increasing the traumatism, surrounded with warm antiseptic dressings, and kept at rest without attempting to place the broken bones in apposition until the inflammatory reaction following the injury has subsided. Should general gangrene of the limb ensue amputation should be performed, but if the gangrenous process is localized I should not consider it an indication for amputation even if considerable tissue is destroyed and extensive necrosis of the bone occurs. Patience, perseverance and a thorough, painstaking application of the principles of antiseptic surgery may result in saving the limb. As soon as the inflammatory reaction has subsided the dead tissue should be removed, necrosed ends of the bones sawed off, the limb brought into a good position and maintained there in a swing or by means of any simple retention apparatus that will permit the use of gauze dressings and irrigation of the limb.

The celebrated case of Dr. Donald Maclean's, reported by him in a paper read before the Ohio State Medical Society in 1894, and in this society by Dr. Tibbals last year, is one of the most wonderful cases on record in this class of injuries.

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The report of that case inspired me to successfully attempt the saving of limbs that before that period I should have amputated, and has also induced me to again call your attention to this important subject. Without further preliminary I will now submit the report of a few cases that will illustrate the method of treatment advocated.

CASE 1. J. M., Swede; was admitted to Mercy Hospital June 22, 1892, with several others who had been injured the day before in an accident on the railway of the Chittenden Lumber Co. About thirty men were riding on the top of a car of logs when the car became separated from its trucks, precipitating the logs and men to the ground. Singular as it may seem, only a few men were injured and only two received broken bones. The subject of this history was the only one receiving really serious injuries, and both of his legs were fractured below the knee. The right leg sustained a simple fracture which united in a short time. The left one, however, was caught between two logs and severely bruised, the skin being broken over a fracture at the middle third. We thoroughly cleaned the leg, placed the bones in apposition and sutured the soft parts which healed by first intention. At the end of a month there was non-union of the tibia. A plaster cast was then applied and the patient encouraged to move around, but after several weeks the bones were still un-united. An incision was then made over the point of fracture which was found to be very oblique, extending three inches in length of the shaft of the bone. Much fibrous tissue separating the fragments was removed and the bones fastened together with bone nails. A plaster dressing was applied and allowed to remain one week. During this time the patient felt well, had a good appetite, slept well nights and was free from pain and fever. These favorable symptoms were considered conclusive evidence that all was well at the seat of operation. Nevertheless, at the end of one week the patient had a severe rigor, whereupon the cast was removed and the wound found to be full of pus, and the entire leg and foot the seat of a violent erysipelatous inflammation. Free incisions were made and the disease of the leg soon brought under

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control, so much so that the fractured bones united without further difficulty. Not so with the foot. Necrosis of the tarsal bones supervened, necessitating several operations for the removal of dead bone. Eventually, after eight months' treatment, the foot became sound and the patient began walking around with the assistance of a cane. He continued doing this for several weeks when suppuration again occurred in the foot and rapid destruction of the bones ensued. By this time the patience of all concerned had been exhausted; the patient was very anxious to return to Sweden and begged for amputation. The confidence of the doctors in the powers of nature to restore the lost bone was shaken, and the foot was amputated at a point about three inches above the ankle below the original fracture of the tibia. The stump healed kindly, a Marks leg was fitted, and in about a year from the time of the accident he departed for Sweden. Six months later he wrote me from Stockholm that he was employed by the Singer Sewing Machine Co., and that his stump was sound. Dr. J. L. Burkart, now of Grand Rapids, shared with me the responsibilities of this case, as well as that of the other cases reported in this paper excepting Nos. 4 and 7.

CASE 2. O. M. was admitted to the hospital January 6th, 1893, his leg having been caught between two logs, the soft parts badly crushed and lacerated, and a compound, comminuted fracture of the tibia and fibula sustained. We removed the loose fragments of bone, cleaned the crushed tissues thoroughly, and placed the broken bones in apposition. Suppuration supervened in a few days, and the patient decided to have the leg amputated, after the chances of saving it had been duly presented. This was accordingly done, and he was discharged February 20th. A little more courage on the part of the patient, and perseverance on the part of the surgeons, would probably have preserved this leg.

CASE 3. L. O., Swede, admitted to the Mercy Hospital October 26th, 1894. Eight weeks previous he had been injured in an accident on the logging railway of Cummer and Diggins. A compound fracture of the right leg had been sustained, and the soft parts had been much bruised and lacer-

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ated. The skin had been destroyed over a considerable area, and there were two granulating patches about the size of silver dollars when he was admitted to the hospital. The deep tissues had healed, however, and the bone appeared to be partially united, only a slight degree of mobility being present. He had been treated at Cadillac by Dr. B. H. McMullen, whose aseptic technique must have been perfect to obtain these results after such severe injury. The patient, however, with the perverseness of his race, was inclined to blame the doctor because his bone had not also united, and I had much difficulty in convincing him that the Doctor could not possibly be responsible for that. Believing that partial union had taken place I encouraged the patient to walk, thinking that exercise would stimulate union. Instead, the mobility increased and soon a loose fragment of bone could be detected on the anterior surface of the leg, which slipped out easily through a small incision. We then irritated the fractured tibia by driving a drill several times into the fragments and rubbing the ends together, although they were so firmly attached to each other as to permit but limited movement. The position of the limb being good and partial union having *apparently* occurred, the small incision was closed and the leg placed in plaster of Paris. The wound healed by first intention, but in four weeks the bone was found more movable than before, and the position of the fragments not so good. A free incision was then made over the broken bone, when it was discovered that the fracture had been an impacted one. The sharp posterior point of the lower fragment had been forced upward under the periosteum of the upper fragment, the detached piece previously removed having filled up the depression in the anterior surface of the limb very nicely, and thus conveyed the impression that the bones were in perfect apposition. So firmly were the fragments impacted that we found it impossible to separate them until the end of the lower fragment had been divided with the chain saw. The bones were then brought into apposition and wired. The skin was carefully sewed and antiseptic dressings applied. We had been having trouble with erysipe-

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las in the hospital about that time, resulting from a case of facial erysipelas that was admitted, and, although a thorough cleaning had been gone through with immediately before this operation, all the germs could not have been destroyed, for in a few days the patient's entire leg became the seat of a violent erysipelatous inflammation. The suppuration thus produced gave us work for many months, necessitating on two occasions the removal of dead bone from the leg. Eventually the necrotic process was arrested and the bone became firmly united. He was discharged about six months after admission.

CASE 4. W. P. This patient had his left foot caught between two car-couplers while attempting to climb over a freight train standing on a siding at his mill near White Cloud. The accident occured September 1st, 1894, and Dr. W. A. Kuhn of White Cloud was immediately summoned to attend him. The doctor found the foot crushed and the lower third of the leg severely bruised, but could detect no broken bones and therefore concluded to attempt to save the leg. He made use of warm antiseptic applications, but failed to restore the vitality of the injured member, and called me in consultation nine days after the injury. I found the foot gangrenous and the lower third of the leg much discolored, in fact the discoloration extended nearly to the knee. There was of course nothing to do but amputate, and that I did immediately with the assistance of Dr. Kuhn, who looked after the patient subsequently. The tissues were edematous and discolored nearly to the knee, but a line of demarcation had formed just above the ankle, and I concluded to risk something by amputating at a point two inches above the line of demarcation and through the discolored tissues, rather than take the other alternative of a knee joint amputation. The flaps soon became gangrenous however, and left the bone uncovered, and twenty days after the amputation I was called upon to remove the projecting bone. The gangrenous flesh had separated and the soft parts were then covered with granulations. I removed the bone and expected that the stump would heal rapidly by granulation. I was again disappointed however, as the soft parts again retracted, leaving

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the bone exposed, and on November 1st the patient was brought to Mercy Hospital, where I made a reamputation at the beginning of the upper third. He then did nicely and was soon discharged with a sound stump. An examination of the amputated foot disclosed the fact that not a single bone was broken. This was a remarkable fact when it is considered that the soft parts were literally crushed to a jelly and their vitality entirely destroyed. While this case is not one of a compound fracture I have included it in this paper because the injury was of essentially the same nature, and involved the same considerations as would a fracture case.

CASE 5. A. B. was admitted to Mercy Hospital, January 22nd, 1895, having been brought sixteen miles in a sleigh on an exceedingly cold night. His left leg had been caught between two logs and a compound, comminuted fracture of the tibia and fibula sustained. The first metatarsal bone had also been fractured and a portion of the bone was torn from its attachments, forced through the skin, stocking and boot, and thrown a distance of several feet from the foot. I saw him a half hour after his reception at the hospital, when he was nearly dead from cold and loss of blood. The leg had been tightly constricted for several hours and was black and cold, especially over the top of the foot. A fragment of the tibia I found upon the leg at some distance from the wound and, as I have stated, the greater portion of the first metatarsal bone was missing altogether. At that time I had no thought of saving the leg, but, as the patient was in no condition for an operation, I directed that stimulants be given him and that his leg be surrounded with hot water bottles. I also had the leg irrigated and covered with bichloride gauze, but made no attempt to place the bones in apposition. The following morning the foot was still cold, black and swollen, and his general condition was very bad. I made a number of punctures in the dorsal surface of the foot, from which exuded colorless serum in large quantities. During the day his general condition improved and arrangements were made to amputate the leg on the morning of the 24th. Other physicians were invited to be present at the

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amputation and all our arrangements had been made for that procedure when I found that much of the discoloration had disappeared from the foot, that it was warm and would bleed when pricked. I recalled the Jackson case reported by Dr. Maclean, and with the concurrence of my colleague, Dr. Burkhart, concluded to defer the amputation. I wish to say that none of us would have thought of attempting to save this limb had it not been for the encouragement received from the report of Dr. Maclean's case, and this man owes a very good leg to the fact that the doctor reported that case so promptly. We followed Dr. Maclean's advice and made no attempt to reduce the fracture or do anything at all with the leg until the inflammatory reaction had subsided. Then with the chain saw we removed the splintered ends of the tibia and wired the fragments together. Subsequent events demonstrated that we should at the same time have amputated the large toe, which had lost its metatarsal bone, but acting on the theory of doing as little as possible, we left the toe and packed the cavity from which the metatarsal bone had been extruded with iodoform gauze. All went well for several weeks and the fractured tibia united very nicely. A large piece of skin sloughed off from the sole of the foot and the back of the heel, but the resulting ulcers healed nicely by granulation. Then suppuration commenced in the tissues of the foot, quickly followed by necrosis of the metatarsal bones. We made free openings, used the curette freely and eventually removed all of the metatarsal bones. Fortunately the destructive process became arrested at this point, the foot filled in and in time became entirely sound. The toes dropped back to some extent owing to the loss of the metatarsals, and when healed the foot was shorter than the other, but he had motion at the ankle and a firm foot fully as useful for the purpose of locomotion as the other one. His leg was two inches shorter than before, but by the use of a high heeled shoe he is able to walk very nicely without a cane. He was discharged from the hospital July 23rd, 1895, six months after admission.

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CASE 6. C. S. was admitted to Mercy Hospital April 10th, 1895. He had sustained a fracture of the right femur eight weeks before, which had been put up in the usual manner with Buck's Extension Apparatus by the attending surgeon, Dr. Foster, of East Jordan, Michigan. Union failed to occur and after eight weeks the patient came to Big Rapids, thoroughly dissatisfied with his doctor and determined upon a malpractice suit as soon as he recovered. I found a fracture in the lower third of the thigh with no union whatever, and made an incision on the outer side of the leg over the seat of fracture. The bone had been broken in the course of the attachment of the adductor magnus, and a large band of muscular tissue had been drawn between the fragments holding them apart, so that I found it impossible to bring them together without dividing the muscular band. When this had been done the fragments were exposed, the end of each cut off, and the freshened surfaces securely wired together, a spiral drainage tube was introduced and the plaster Paris dressing applied, a window being left for the exit of the drainage tube. All went well for the first week; bloody oozing stopped, and the tube was removed. Subsequently localized suppuration occurred, necessitating the reintroduction of the tube. Under antiseptic irrigation the suppuration soon subsided, and the incision quickly healed. The bone united after some delay, and in two months the patient was discharged. Before his departure I convinced him that his doctor was not in the least to be blamed for the failure of the bone to unite, and thus averted the threatened suit. Dr. Foster wrote me recently that the patient had a good leg, and was only troubled by a stiff knee which resulted from the long confinement in a straight position. He declined to have anything done for this condition before leaving the hospital.

CASE 7. J. M. was injured about 2 o'clock in the morning October 8th, 1895, by being caught in a belt at the hoop factory in Big Rapids. His right leg was drawn partially around a pulley and fractured in the lower third. I saw him a half hour later at his mother's home, a most dirty habitation, and the boy himself was in about as filthy a condition

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as one can imagine. I found him upon a heap of dirty bedding with six inches of the tibia denuded of its periosteum projecting through a hole in an exceedingly dirty trouser leg. Upon removing the trousers I discovered that a flap of skin had been torn loose from the anterior and inner sides of the leg. The apex of the flap was two inches above the inner maleolus and the base two inches below the knee. The base was attached, the flap having been made by the upper fragment of the tibia. As the leg had been drawn around the wheel the bone had given away, and the upper fragments had torn through the soft parts, producing the large V-shaped flap described. The fracture in the tibia was a very oblique one extending through a space of three inches in the shaft of the bone. The fibula was of course fractured, but was not exposed to view. I requested the people to move the boy to the hospital and met with a refusal. I then informed them that I should not attempt to save the leg in that house, that the surroundings were so dirty that no good results could be expected, and that they must take their choice of an immediate amputation or removal to the hospital where I would attempt to save the leg, but that I was by no means certain of achieving that desirable result. The alternative quickly brought the family to their senses and the patient was transferred to the operating room at the hospital. I summoned my confrere, Dr. W. J. O'Hara, and we turned the hose upon the patient and gave him such a cleansing as he had evidently never before had. The broken tibia was then brought in position and secured by a silver wire suture passed transversely through the oblique fracture. Ragged fragments of tissue were removed and the V-shaped flap carefully sewed in position. Large gauze dressings were then applied and the leg placed on a posterior felt splint. The tissues had been so much bruised and lacerated that during the following week enormous quantities of bloody serum exuded from the leg. In a few days the silver wire suture became broken and was removed, but no displacement of the bone occurred. A half inch margin of the V-shaped flap sloughed off. The remainder became united, and the space left by the sloughing

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tissue quickly filled in by granulation. At no time was there any evidence of suppuration. In six weeks the entire wound, excepting the small point at the apex of the flap, had firmly healed. At the apex the tip of the upper fragment of the bone was exposed and did not cover with granulations. As the bone itself had united and as there was no suppuration, I determined to let nature take her course and permitted the boy to move around on crutches. On January 1st, 1896, the bone having become firmly united, the patient left the hospital and came to my office occasionally to have the leg dressed. A month later a thin shell of bone separated from the inner surface of the tibia, and I removed it with forceps. After that the small wound rapidly closed by granulation and the boy was dismissed from observation about March 1st. I am indebted to Dr. O'Hara for carrying out many of the tedious details in the after treatment of this case.

These cases have been selected as illustrating the improved results that may be expected from increased experience. They cover the period of my connection with Mercy Hospital, and present, I hope, some evidence of professional advancement during the past six years. In cases 5 and 6, who today have good legs, I should certainly have amputated so recently as two years ago without a thought that there was the slightest probability of saving the limbs. I trust that these reports may encourage others to perseverance in the same direction when similar injuries are met with.

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DISCUSSION OF DR. DODGE'S PAPER.

DR. MACLEAN, Detroit: I feel bound to have a word to say in regard to Dr. Dodge's paper, for more than one reason as you may suppose. It is a very able paper indeed, and I have taken a special pride and interest in it, having had the honor of giving the doctor some early instruction in surgery and other good things, and in addition to that you see that he, by this paper, has shown a disposition to try and continue to follow somewhat in my footsteps, and in that I think perhaps he is not altogether unwise.

There are one or two points that occurred to me in this connection. These cases are all interesting. I don't know that there is anything in surgical practice that is really much more interesting to the surgeon than compound fracture. I don't care what bone it is, but especially compound fractures of the bones of the leg and thigh, and any new idea or any addition to our practical experience that we can get on this subject will always be welcome to surgeons. My own experience that the doctor referred to certainly had a great influence on my own mind, and I like to know that it has been of assistance to others.

Now, since the doctor has read his cases, I ask you just to consider whether the course which he took was not a solid advance from the old practice. In former times when a doctor was brought face to face with these cases, where he found great violence to the soft parts, great swelling, irritation and displacement—almost a condition demanding amputation, supposing he did decide not to amputate but to try and save the limb, he felt bound to go to work immediately and manipulate it, extend it, put on splints, put on plaster, put on extension, and fuss away with it for an hour or two in his well meant endeavor to save the limb. Was it not better I say, instead of following that course, when he had made up

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his mind to try and save the limb, to simply leave it alone, giving nature a chance to work things up and restore the balance of nutrition and give the recuperative powers a chance to recover themselves. Tissues, like the whole system, suffer from shock. A limb that is broken is subjected to great shock, and its vital powers are suppressed, therefore just let it rest. It does not at all increase the danger of the after treatment, but the reverse, by allowing the tissues to have rest and to recover their tone, the irritation to subside—the swelling to go down; and then you can go to work far more intelligently in your replacement and your treatment. It is not a matter of only a few hours, but I contend that days may pass with perfect safety without, to use an old phrase, "setting." The process of union is a slow process of growth. Actually, at the seat of fracture there is a return to the fetal condition. Nature goes to work there and sends in a lot of new fetal cells which go through a process of development and gradually restore the injured tissue. That is a gradual process. It does not set in a moment like plaster of paris; it is gradual, and while that process is going on, the surgeon can inspect from time to time, and if the limb is out of shape, set it right. If it is a little short, lengthen it. If there is a little rotation, turn it over. You can do that with perfect safety, gently and comfortably to the patient, and I contend that this is an advance over old methods. When I read a paper at Zanesville, Ohio, a few years ago, before the Ohio State Medical Association, and expressed these views, the association I must admit stood rather aghast; they did not quite take it in. They were surprised. It was a shock to all their views and all their practice and all their prejudices. "Set a limb the moment you can get at it" comprised the time honored creed. And that is correct, when you can do it without endangering the limb, but if you cannot do it without endangering the limb then don't do it until you can do it without endangering the limb. Wait. And it is my own experience in railroad surgical cases, which has convinced me over and over again, that carrying out that time honored rule was in many instances a mistake. In simple cases of fracture

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you would be very foolish in fact to leave it until the next day when it can be done immediately, but we are speaking of the cases that the doctor has spoken of, severe cases.

Now, one other point and I am done. It is in regard to another very interesting department of surgery, for the surgeon as well as for the patient, viz.: UNUNITED FRACTURES.

An ununited fracture means a fracture that has utterly refused to unite. It does not mean a cartilaginous union—*non union* is one thing and false joint is another. There are all these, but where the two ends come together like whittled down pieces of chalk, wasted and atrophied and all but dead, that is non-union. Then you have false joint, as the doctor had in some of his cases, partial union, forming a joint at the point of fracture. And then besides that you have cases that after the usual time has elapsed, when you come to take off your dressings and expect to find the limb united, have not yet done so, but it is not false joint nor is it delayed union, it is *non union*. I do not think that the doctor can claim to have had real cases of actual *non union*, and it is on that point I want to speak more particularly. Now you know that surgeons from time immemorial have endeavored to discover the cause of non union, and in all the works on fractures and dislocations you will find a long list of possible causes, ranging from pregnancy down to syphilis, old age and I don't know what all, but from my own experience and thought and consultation with my professional brethren the last few years, I believe that the real cause of non union is this: At all events, right or wrong, I am responsible for the idea that *non union is the result of a violent direct injury which so depresses the tissues that it deprives them of their recuperative power.*

EARLY DRESSING. Early manipulating I think would be very likely to aggravate that injury, and if you will look back over your own experience, the number of cases of non-union, or if you look up the literature of the subject as I have taken the trouble to do, I don't know that there is an exception to the rule that non-union occurs in cases where there has been a direct injury, so that the vitality of the bone and surrounding tissues

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is so depressed that repair is absolutely hopeless. I believe in the treatment of cases of non-union that no operation has as yet ever been devised that will give more than one per cent of success—in genuine cases of non-union. I am not speaking of cases of false joint or delayed union. The doctor's cases were mostly delayed union. Even then, he was very fortunate indeed. I must congratulate him in having secured the success he did, but they were delayed union.

Now, I want to give one additional argument in favor of my theory as to the cause of non-union. There is no bone in the body more frequently broken than the clavicle, but it is nearly always broken by indirect violence. We also know, though it sometimes has given some trouble in the treatment, that it always unites. You look over the literature of the subject and you will find non-union of the clavicle one of the rarest accidents in surgery. I have seen two cases of non-union of the clavicle. In both of these it was not produced in the usual way, but directly in one case by the kick of a horse, a violent injury which destroyed the vitality of the bone to such an extent that it never recovered itself. The other one was produced by being struck by the wheel of a runaway carriage, and with very great force, which almost killed the patient. Neither of these ever united. There I believe is the true explanation of the fact of non-union. In delayed union plaster casts and manipulation and treatment of that kind very often succeeds. When a patient comes to you with actual non-union of the thigh, as they have come to me sometimes from the northern woods, with absolute non-union, perhaps after various expedients have been resorted to and after sufficient time had elapsed at all events to prove certainly that it was non-union, and where a patient comes having a leg in that state, if I cannot put on an appliance, which you can on the arm or leg often, if I cannot do any better I should amputate the limb. I have a patient now whom I see sometimes who has been for years living a very active life with non-union of both bones of the leg, using an apparatus. If you can put on an apparatus that will support the leg, all

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right, but you will find actual non-union of bones a very rare thing.

I want to say once more that I listened to Dr. Dodge's paper with more than usual pleasure, and in saying that I not only put it on personal grounds—on my relations with him, but I think that every member of this section has listened to his paper with very great attention and interest.

DR. AMY KIMBALL, Jackson: I would like to give direct testimony about one case in which Dr. Maclean insisted on saving a case in spite of all the physicians of the entire town, and that was at our railroad wreck at Jackson. There was a girl very seriously injured—there was every kind of injury in the way of fracture, and we all of us thought there must be amputation, but the doctor would not allow us, and all he did was to leave her entirely alone, using simple newspaper splints to keep the bones in position.

DR. DECAMP, Grand Rapids: I would like to say one word here just now. It is about fifty years since I commenced to practice medicine. That is more than anyone else can say in this room probably. I will say that it has been negligence, at least I feel now ashamed to think that I never put before the public more than I have of my experience. The very experience that Dr. Maclean spoke of, the very experience that Dr. Dodge had, I might have given them that lesson over twenty-five years ago, and I have practiced it ever since. I did not put it before the public, and now they come and take the glory of it and I am ready to go off the stage without any. But I would say that the principles laid down here are correct according to my experience. I say that these laws, you may take it all of you for granted, that these rules carried out are the proper rules according to experience. I do not want to say that I have treated hundreds of fractures, but I have treated until the last few years from thirty to fifty fractures a year, and I think that is enough to give me a little opportunity of knowing, and I say that these rules are good to work by.

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DR. FULLER, Grand Rapids: I am pleased with the paper of Dr. Dodge, as well as with the remarks of Drs. Maclean and DeCamp, because they show a tendency toward a reaction in favor of conservative surgery, a return to which would be an advance in the science and an improvement in the art. I believe in the aseptic treatment of wounds and that great care should be taken in surgical operations to prevent the introduction of germs which would set up the specific actions of which they are the cause. But I cannot help but think that many good principles of surgery have been lost sight of by the exclusive attention that has been given of late years to this particular element of surgery, antisepsis, asepsis or by whatever name it may be called. I am of the opinion that if Dr. Dodge had freely drained some of his cases he might have saved the limbs which he was obliged to sacrifice on account of the antiseptic bias which influenced his treatment of them. The practice of careful antisepsis in the treatment of wounds and in surgical operations is established upon a sound basis as a principle of surgery, but exclusive of other principles and wholly relied upon it has wrought a vast amount of injury. Thousands of limbs might have been saved which have been sacrificed because perchance there might have been a microbe in a wound which the surgeon feared he might not be able to destroy, in consequence of which his patient might die of a general sepsis, and that if a drop of pus should be discovered upon the dressings, he might himself be subject to criticism. I well recollect the time, when upon retiring, the devout surgeon, on his marrow bones, earnestly implored Divine interposition to the production of pus in the wound, as Wellington prayed for Blucher at the battle of Waterloo, because he well knew that the appearance of pus meant safety to his patient. Again, thousands of unnecessary and injurious operations are yearly made by tyros, innocent of surgical principles, under the impression that if only microbes can be excluded no harm and perhaps good

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may result. Suppuration is very often due to lymphatic stagnation and, as I have frequently demonstrated before my associates, a bandage properly applied will accomplish all that is claimed for antiseptics in the treatment of amputation and ordinary wounds. The paper of Dr. Dodge also throws light upon the cause of ununited fracture which is important to recollect. I will call attention to what has seemed to me to be a frequent cause in such cases. If a person has been in the habit of using large quantities of beer, his bones will not readily unite, neither will wounds cure rapidly and solidly. Such persons are affected with an enlarged and fatty liver which interferes with the processes of repair. The discussion of this paper furthermore affords me much pleasure from the fact that it is possible to speak a word of heracy before an assemblage of this kind without a manifestation of disapproval, indicating an era of liberality of thought and speech.

DR. DODGE, Big Rapids: I simply wish to say that the treatment of some of the cases reported in the paper I do not want to approve of myself. You notice the cases go back several years. I called special attention to the fact that the mode of treatment showed some progression, and in regard to antiseptics, in the recent cases of injury I have not used antiseptic measures; I used asepsis, that is, simply cleanliness. I have only used antiseptics after an infection. In some cases one of the defects in the treatment was that I did not use sufficient drainage, which I think in all cases where there is extensive bruising and injury of the parts is very important. And I think the use of antiseptics, that is the use of chemical antiseptics, is also an injury to the tissues and increases the tendency to suppuration, but after the occurrence of infection I believe in using antiseptics.

DR. GREENE, Grand Rapids: I wish to say before adjournment that I take pleasure in calling the attention of the members of this section to the work of one of our own townsmen who has been a very industrious worker in relation to the anatomy of the brain. He has reproduced his dissections in plaster of paris casts and they are very perfect and in-

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structive specimens. This work has been done by Dr. Fuller who is here and will explain anything you wish to know about it. I have been very much surprised to see how perfectly anatomical specimens have been reproduced in plaster of paris, not only the form but color.

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SURGICAL DRESSINGS—WHY DO WE USE THEM?

C. VAN ZWALUWENBURG, M. D.
Kalamazoo.

It would be very interesting to go through our medical literature and compile the various methods of wound dressing which have been used, and the reasons given for their peculiar efficacy. From time immemorial the burning question in surgery has been, "What shall we put on the wound?" To the laity it is "What must we put on to make it heal?" The answer is legion. Recently a very intelligent lady was shocked because in dressing a patient very severely burned I did not put anything on the face, which nature had so beautifully protected by the dry cuticle which was simply scorched but left in place.

The surgeon who describes a new operation, or writes up his last 100 cases successfully operated upon by his own infallible methods, considers he has not fulfilled the burning need of his contribution without giving in detail his own exact perfect dressings. Now it is not my purpose to read you such a compilation, but to simply consider some of the fundamental principles which should guide us in selecting the appropriate dressings for a given case. Many of our surgical dressings are put on empirically, and looking through half a dozen recent works on surgery I was unable to find a clear, logical discussion of this subject in any of them.

I would include in the term "surgical dressing," any material applied to an injured part, with the idea of allowing it to remain for some time for the purpose of assisting nature in bringing about repair. Let us briefly review nature's method of repair. Whenever a wound occurs, whether from

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external force or indirect violence, or from the entrance of germs into the tissue, the first step is the arrest of hemorrhage (if there be any), then, and at the same time, there is an increased amount of blood sent to the parts; the vessels are dilated; the blood stream, first accelerated, soon slows down; the serum and fibrine pass out into the tissue into the wound and out of it, if it be open. White cells and even red cells speedily follow, and fill up the tissue spaces between the injured parts and the healthy tissue behind. These cells divide and increase until there is a perfect wall of cells and fibrine. We will not stop to discuss where all the cells come from, or what is the controlling power which sends them, but we know they are there, and we know something of the work they perform. They are there 1st, to remove the dead tissues; 2d, to prevent further injury; 3d, produce new tissue; 4th, to unite separated parts. The dead tissues are liquified and absorbed, or driven out as secretion, or are separated and thrown off externally en masse. The cells carry with them a limited power to destroy germs, and to prevent their increase, thus preventing further injury by them. If the wound is an open one it is quickly seared over with a coating of coagulated and dried mass which protects from further external injury, and which is a perfect barrier to the entrance of germs from without. If the wound be a small one, and nature equal to the task, she will destroy the germs present and continue repairs under this protection until completed. If large, and the amount of effete material too much to be absorbed into the circulation or dried into the scab, this protection must frequently be broken to allow of the extrusion of dead or dying material. New tissue is formed from the accumulation of cells, whether from the mononuclear or multinuclear cells or the surrounding tissue cells we will not discuss now.

New blood vessels are likewise formed, and this new tissue contracting and constantly absorbing itself perfectly reunites separated tissues and repairs the breach.

The principal interest attaches to this wall of cells ever present after any injury, and it is this wall which we should bear in mind in applying our dressings, and in making our

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attempts to assist nature. It is here that all the active work is going on; here is the fight with the invading host of germs; here occurs the liquefaction of broken down tissues, the separation of what is to be absorbed, and what is to be thrown off; here is the strife against the absorption of toxines and poisons and the attempt to prevent nutrient material from leaving the wound. I believe there is an intelligent selective power in this wall to decide what shall go to one side or the other of it, in addition to its osmotic action in common with all organic membranes and tissues. Still, whether objectionable material shall be absorbed or thrown off depends largely upon the balance of fluid pressure. If the pressure from without is greater than the resisting power of the wall and the pressure in the tissues behind it, absorption will take place; but if the pressure from without is nil (or the opposite of pressure, that is, attraction) the current will be in that direction. This is a brief and imperfect resume of nature's process of repair, but sufficient for our purpose. This all-important function is worthy of much study. The better we understand nature's methods the better will we be prepared to assist her.

It is evident that our ability to assist nature is comparatively limited. We can only reach the outside of the above mentioned wall. Science has demonstrated beyond a doubt that we can do nothing to "heal" a wound, and all the drugs and so-called stimulating applications cannot bring about a single granulation.

Nature follows two principal lines in bringing about repair; these are the removal of dead and foreign material, and the protection against further injury. She accomplishes the first by drawing into the circulation and throwing off externally, and the second by throwing out the protecting wall of cells and fibrine, and by covering externally with a scab. In these two directions we can materially assist, and these should be the reasons why we use surgical dressings. We put on dressings for drainage and for protection, and practically for no other purpose.

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Were it not for the ubiquitous disease germ there would be little need of our assistance. This is what makes the mischief, and is it any wonder that surgery is revolutionized by its discovery? How could our predecessors be expected to render assistance when they did not know what the real cause of the difficulty was? The wonder is that they did so much. When these germs were discovered the first natural consequences was the attempt to kill them with chemical germicides; and although much was done in the way of prevention of their entering a wound, their effect on the germs once present was disappointing. They become so deeply imbedded in the repairing wall that much tissue must be injured before they can be reached.

If we provide free drainage so that germs and their toxines will be immediately removed as fast as the tissues throw them off, we render practically all the assistance we can in the way of getting rid of the germs. The wall of cells and fibrin is a perfect barrier to the passage of germs and toxins into the circulation if the outward flow be fully maintained. The difference between drainage and no drainage is very forcibly impressed by the relief which follows the thorough opening of an acute abscess. To a greater or less extent this same condition prevails in every wound according as it is properly drained or not. Fluid will go in the direction of least resistance, and toxins will be absorbed if the dressings do not drain. This drainage should be provided for and retention prevented by a proper arrangement of the dressings of every wound in which the presence of germs is suspected, and in all wounds where so much secretion occurs that it cannot be carried away by the circulation. To accomplish this our dressings should be porous, loosely applied, and should be kept moist. They should be placed in as close contact as possible with parts to be drained. Of all the various materials used gauze is undoubtedly the best. It can be kept moist by covering with rubber tissue or protective. Where this is not sufficient the gauze can be moistened with some bland oil or glycerine. Glycerine being anhydrous sometimes increases the flow of the serum too much. For suppurating wounds

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(and where asepsis is out of the question) a mixture of castor oil 1 oz. and balsam peru 20 grs. is very efficient in maintaining the proper amount of moisture under rubber tissue. It is unirritating and prevents the drying down of the dressings and consequent sticking to the wound when removal becomes necessary. If such a dressing can be kept in close proximity to the wall of cells previously described (the pyogenic membrane) there will be little use for antiseptics or for irrigation. All that can be accomplished by either or both is performed by the germicidal and extruding powers of the tissues and the prompt removal by the drainage.

By placing guaze immediately against an abscess wall we provide ideal drainage. It removes poison and debris as soon as formed. I believe its so called stimulating effect is due to this action, and there will be little need of stimulating insufficient granulations or reducing exuberant ones with chemicals where it can be practiced.

When the wound is in the form of a cavity and the dressings cannot be applied to its walls directly, drainage must be provided by tubes if sufficiently free incision is not practicable. I believe in the frequent use of the drainage tube on the principle that drainage is the most important assistance we can furnish nature and about the only one when germs are present in a wound. The substitute of gauze for a tube will hardly answer the purpose. If a wound can be fairly well packed with gauze it conforms to the previously mentioned condition of carrying away secretions from the very wall of the abscess; but unless the isthmus between the gauze within the cavity and the outer dressings is large this part of the dressing will be inadequate and retention must result. Even where this isthmus is large great care must be taken to preserve its absorptive properties by loose packing at this point, and that of the outer dressings by keeping them moist. Very little drainage results from the passing of a strip of gauze into a good-sized cavity and covering it with a dry dressing. How often we see such a so-called "gauze drainage tube" dried into the mouth of a wound forming a veritable plug and how the pus rolls out of the wound as it is removed. I be-

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lieve much harm is done in carelessly filling a uterine cavity with gauze with the idea that it is a drain. If the uterine cavity be loosely filled and the cervix crammed full it is very evident that pockets will remain for the retention of secretions, and if the cervix is exposed with a speculum when such a plug is removed serum and pus will be observed to follow freely. If iodoform gauze is to be packed into the uterus it should be carefully brought into close contact with every part of the wall of the uterine cavity to prevent pockets, and the center and cervix packed loosely so as to provide some capillary activity. Its use should be confined to uteri not more than double the normal size in which a perfect aseptic condition can be secured, and should be used for its effect upon the uterine wall and to stimulate to contraction. Where a large cavity exists to produce copious secretion, and we cannot be certain of asepsis (in other words, in cases where drainage will be necessary), no gauze should be used. In this category I would place all cases of sepsis after labor even down to abortion at the third month.

Drainage into the dressings should be provided after every operation or injury in which the surgeon is not absolutely certain of the aseptic condition of the wound; also in an aseptic wound in which there is reason to expect a free flow of serum. Even if this were perfectly sterile it would separate the walls of the wound, overtax the absorptive power of the circulation, and delay healing. Again it favors the growth of the few stray germs almost always present. The staphylococcus epidermis albus almost always present in the skin so deep that it cannot be removed by ordinary methods of scrubbing and asepticising, may take on pus-producing activity in the presence of accumulated secretion otherwise aseptic.

Drainage can be easily secured upon aseptic principles. A very efficient plan is to use first a sufficient quantity of sterilized gauze to cover the wound thoroughly; second, some gauze containing some antiseptic (preferably bichloride of mercury); over this the protective or rubber tissue; and all held firmly in place by a free supply of bandages. At the lowest portion of such a dressing a separate pad of sterile

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gauze or even cotton batton, jute or oakum may be placed so as to be removed without disturbing the main dressing. In these aseptic cases also the drainage tube should not be shunned. Much discussion is rife on this point, but I see no reason for fearing it. It can be thoroughly sterilized and need not be left long. Twenty-four to forty-eight hours is sufficient, though recently after amputation of a breast I left the drainage tube a little more than three days, under the fire of my colleagues. Still no suppuration followed, and the entire line of incision, including the axilla, five and one-half inches, healed without a drop of pus, and this was done in a small private house surrounded by marsh.

In providing for drainage into the dressings, whether the tube is used or not, we should provide enough material to take care of all the secretions to be expected during the time it is to remain in place. Neither should it be changed too often. If in a suppurating wound the secretion is profuse (as in empyema or large abscess), it may require a considerable quantity to hold the secretions for two days; but in small wounds about the hands or face, or after profuse suppuration has subsided, provision should be made to leave the dressings in place three, four or five days. After some time the pus cells and other debris accumulate in such number in the inner layers of gauze that it ceases to perform its capillary drainage functions, and must be removed. In aseptic wounds with drainage the dressings should be left much longer. Often they may be left in place until the wound is healed.

Our dressings should be so arranged as to be easily removed from the wound. By using moist dressings under rubber tissue there is no drying of gauze or cotton into the wound. The entire dressing can be removed at once without the long formality of soaking it off. Where the dressing need to be changed a great many times (as in long continued bone cases), the coming of the surgeon is not looked upon with the dread of torture so prevalent with the dry method. A wound can be kept aseptic through a number of re-dressings much more easily (especially in private practice where the improved apparatus and methods cannot be had) if no water is neces-

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sary in removing the dressings. The old can be taken off and the new put on at once and the wound covered. With irrigation there is danger of the water not being thoroughly aseptic. The outer layer of the dressing must contain germs, and the water going through them down to the wound is liable to carry infection with it. The water coming in contact with freshly united tissues tends to break up new adhesions. It must remove the outer layers of delicate cells in the new formed tissue and wash away some fibrin which must be replaced before healing can go on. We know from recent investigations that the serous membrane in the abdominal cavity is injured very materially by the jet of water from a fountain syringe, as well as from the presence of plain sterilized water. I would like to enlarge upon this subject were I not taking so much time already. Suffice it to say that I have discarded the douche almost entirely at the redressing of wounds, septic as well as aseptic. About one year ago I treated two cases of empyema in children by incision and drainage tubes; did not use a drop of water either in the chest or on the surface, changed the dressings every second or third day aseptically without water, and in one the wound was entirely closed in five weeks, patient well, and the other in six weeks. Both remained well. Not an untoward symptom appeared in either case.

The other principal reason for using surgical dressings (that of protection) has already received considerable mention incidentally. The necessity of protection against gross injury to a wound is so evident, and is so naturally provided for, that it needs only to be mentioned here. There is, however, necessity of protecting against microscopic, or perhaps it would be better expressed to say chemical injury produced by germs and their products. Nature protects against them everywhere. She provides the impervious cuticle to all animal and vegetable matter. When this is broken she at once improvises a substitute, more or less perfect, until the cuticle with its various other functions can be replaced. In wounds such as we are considering she provides by the coagulating of fibrin and the drying down of various materials on the sur-

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face of the wound, a covering which we call a scab. This, after it is well formed as we see it daily in small wounds, is practically a perfect protection against the entrance of germs from without, so that if no germs are present within the wound, or they are few and the germicidal action of the tissues can attack them before they have opportunity to develop and multiply, healing will go on perfectly within and in such a manner that it cannot be improved upon by any interference on the part of man.

If therefore we can succeed in preventing germs from entering a wound until this protection of nature has been provided, we have an ideal surgical condition requiring no more care from the surgeon except to see that this scab is not broken. Often no protection is necessary at all except such as nature provides. Generally we can assist in promptly providing a firm tough scab by the application of iodoform or similar substance, which, while putting the germs to sleep for awhile, helps to dry the surface, or we can add collodion with or without a liberal sprinkling of cotton batton. Where the wound is large or in danger of injury, gauze, cotton and bandages must be added. On the face and scalp, however, and often on the hands and other parts of the body this is unnecessary in wounds of moderate size. In these localities after small aseptic operations, or injury made aseptic by antiseptic cleansing, I habitually use no dressings besides the iodoform. The face especially is difficult to bandage; the tissues have a rich blood supply, the germicidal properties are considerable, and the healing process is rapid. The wound can be constantly seen and watched and is not torn open by the removal of dressings. The only directions to give the patient is not to wash in the neighborhood of the wound. The other day after removing from the chin a wen the size of a hickory nut I simply dusted with iodoform. When the man returned for removal of the sutures he said most everybody had advised him to do something to make it heal, beginning with witch hazel and arnica and going through the entire popular list, but he had heeded my injunctions and we had a perfect result. After removing a nævus from the

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forehead of a six-months' old baby, leaving a line of sutures 1½ inches long, we acquired a similarly perfect result, much better, I believe, than if we had attempted to bandage the round, smooth head of the little squirmer.

As an example of antiseptic cleansing, followed by sealing of a wound, I beg time to relate the case of an old man 80 years of age who fell off a porch five feet high, and among other injuries received an irregular scalp wound fully 1½ inches long full of dirt from a kitchen dirt pile. I washed thoroughly and left a 1-1000 bichloride solution to be kept applied by compress to the open wound for sixteen to eighteen hours. At the end of that time I drew the jagged edges together by tying the hair on opposite sides of the wound. A considerable gap remained which I filled with iodoform. No other dressing was applied, the hair matted down over this, and no further attention was paid to it except to keep it dry for three or four weeks. The wound had healed perfectly under a scab. I believe the bichloride of mercury had killed all the germs present, and the result justified the sealing of the wound.

Any wound which is known to be free from germs may be sealed up, though where considerable oozing is to be expected it is best to provide for carrying this away by drainage into the dressings as previously described. In all other cases a wound may be sealed as before and the dressings allowed to dry over it. Germs are rendered effectually inactive when no moisture is present, and any slight oozing from the wound will not provide a habitat for them if allowed to dry at once. In this way a perfect scab will be formed on a large scale and healing will go on under it as in smaller wounds. Of course, the first layer of gauze or other material on such a wound should be sterilized and may usually with advantage be filled with iodoform.

By common consent we find gauze the best material we have for the protection of wounds. Germs make their way very slowly through it, and if it be kept dry a few layers of it will make a perfect barrier to their entrance. I don't intend that it should be used sparingly. On the contrary enough should

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be used to make it absolutely certain that no germs will pass. It is well to have the outer layers of gauze filled with some antiseptic, preferably bichloride of mercury. If over this sufficent cotton is placed to allow of motion of the body without feeling the grating of harsh dressings we will add comfort as well as protection. Protection is thus also provided against injury from any other source. Over this an abundant supply of roller bandages sufficient to keep the dressings perfectly in place, even if the patient should move about, and we have a perfect protection to a perfect aseptic wound. To any of these dressings it is a simple matter to add splints, plaster or other immobilizing apparatus.

There are occasionally other objects for which surgical dressings are used. As such I might name the arrest of hemorrhage by packing and pressure; the prevention of adhesions in the abdominal cavity; the stimulating of old ulcers by chemical applications, or the removal of exuberant granulations (though as I said before I believe there is little reason in these). Still the principal objects for which surgical dressings are used are drainage and protection, and with these two objects in view we need never go far out of the way to provide a satisfactory and efficient form of dressing for any kind of wound. If germs can be certainly excluded protection is all that is needed, otherwise drainage must also be provided.

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DISCUSSION OF DR. VAN ZWALUWENBURG'S PAPER.

DR. STRANGWAYS, Flint: We have all listened with pleasure to this paper. There is lots of food in it for any one of a dozen men here to take an hour in discussing it, but we remember that last year a number of papers were crowded into the last hours and we were not able to have any discussions in the last afternoon. We have a very long program to finish yet, and unless we make the best headway we possibly can we will have to crowd out some of these papers. We all were much interested in the discussions yesterday, but I think, in justice to those who come toward the end of the program, and probably for our own advantage, it would be well for us to limit the total amount of time which each member may have for discussing any one paper to five minutes. In view of that I will make a motion that in discussing any one paper a member shall be limited to five minutes.

Supported and carried.

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REMARKS ON THE MANAGEMENT OF GLAUCOMA.

LEARTUS CONNOR, M. D.,

Detroit.

The literature of glaucoma is honeycombed with doubt and contradiction. If a writer advances a theory of its causation others demonstrate its inadequacy; if one presents a pathology another proves it incomplete; if one proposes a plan of treatment others shortly affirm that they have tried the plan and found it wanting. One cures his cases by iridectomy, another by sclerotomy posterior, another by sclerotomy anterior, another by internal division of the sclerotic at the angle of the anterior chamber, another by the division of the ciliary body, another by corneal punctures, another by myotics, others make a selection from these several modes of treatment according to the case in hand. This is a rational method, but as no two make the same selection the seeker for practical directions in treating a case of glaucoma must sift his own data and follow his individual judgment.

If the eye could be taken apart and studied during the very early manifestations of the disease, we should more directly attain that knowledge which shall unite all discords into one consistent tune. As a fact we are compelled to wait till the eye is blind or the patient dies from some intercurrent disease for a chance to study the actual changes in the eye made by glaucoma. Experiments upon the eyes of lower animals are utilized to fill this gap in our knowledge, but these are always discounted by the doubt as to the extent to which they represent the reactions occurring in the human eye during the progress of a case of glaucoma. Then cases of glaucoma are rare, not more than one per cent., so that an individual

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observer has relatively few with which to pursue his practical studies. Worse still, of the cases he does see few are within his observation during the entire course of the disease. In spite of these and many other obstacles, the management of glaucoma is progressively more satisfactory, what can be done is more definitely separated from what cannot be done, and a clearer light illumines the entire subject.

On one point all agree. "Normal ocular tension should be restored at the earliest possible moment," because its increase is to the contents of the eyeball what a strangulation is to the intestine in a case of hernia. Von Graefe first proved that iridectomy would cure some attacks of glaucoma—a discovery of inestimable value and adequate to render his name immortal.

Added experience has shown that an iridectomy will not cure all attacks of glaucoma, or all stages of any one attack, that it is useless to stay the progress of some and absolutely hastens the destruction of the eye in other cases. Yet with all its limitations it remains *the* remedy for attacks of glaucoma with increased tension.

The cause of this increased tension has occasioned a vast amount of research, and the last word has still to be spoken. Present facts seem to support the following as the chain of events leading to an attack of glaucoma.

Normally the fluids secreted in the posterior chamber of the eyeball escape through the cribriform disc of the optic nerve and through the suspensory ligament. From the anterior chamber the outflow is by the anterior angle through Fontana's spaces and the canal of Schlem, thence through the sclerotic to Tenon's capsule. The spaces through which this outflow occurs are in connective tissue and devoid of epithelium. Hence the fluid has a constant contact with the connective tissue fibres of the suspensory ligament, optic nerve and angle of the anterior chamber. If this fluid becomes abnormal and remains so during long periods, the connective tissues through which it flows must undergo changes. If the fluid be defective in nutritive materials and loaded with irritative elements, it is clear that ultimately the

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connective tissues through which it passes must undergo degeneration. Such changes in the secreted fluid of the posterior chamber may be expected when the blood constantly supplied to the chamber be what for short is known as "dirty" blood. Such blood is found in numerous diseases, as gout, rheumatic gout, syphilis, imperfect digestion from either bad food or good food taken in excessive amounts at improper intervals. After a time the degenerative process in the connective tissue outflow spaces becomes so advanced as to no longer suffice for the free transmission of the fluid secreted in the posterior chamber. If now this fluid be changed by a disturbance of the secreting vessels through the nervous, muscular or digestive systems, we may have the outflow spaces absolutely closed and an acute attack of glaucoma. Dr. Richey has especially emphasized the origin of glaucoma through the operation of "dirty" blood.

Knies has experimentally shown that the composition of the fluid in the posterior chamber may be so altered as to effectually clog the outflow spaces, both anterior and posterior, when the connective tissues are perfectly normal. Much more will such changed secretion clog the spaces when they are diminished in size and altered in character by degenerative processes.

Thus glaucoma is a chronic constitutional disease, with occasional local outbursts in the eye due to obstruction of the outflow spaces. Generally ophthalmologists have called the local outburst glaucoma and devoted their exclusive attention to its management. Evidence is accumulating to indicate that it is a part of wisdom to treat the general constitutional dyscrasia that produced the local outburst in the expectation that the local treatment will prove more satisfactory and future outbursts be prevented.

Simple glaucoma has little to distinguish its presence in many cases, other than diminished visual field and excavation of the optic nerve.

Under the operation of the constitutional dyscrasia the connective tissue of the optic nerve loses its power to hold these fibres in place, so that with the central retinal vessels

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they drop into the hole. The peculiar appearance of the blood vessels at the sides of this hole make it quite easy to recognize this excavation with the ophthalmoscope. If the anterior connective tissue spaces have escaped the ravages of the dyscrasia, no other symptom may attend the case from beginning to end. But if the anterior spaces become involved other symptoms of more or less gravity will appear. Without these latter the management of such a case is wholly constitutional, as there is no reason to suppose that either operation or medical treatment, locally applied, will avail ought. To secure such habits of life as will insure an abundant supply of pure blood to every portion of the body, including the eyeballs, at all times will afford the patient the best chance of retaining vision for the longest period. It is surmised that some of the cases in which iridectomy was followed by an immediate reduction of vision belonged to this class.

But most cases of simple glaucoma at some time in their course present other symptoms, as increased tension, diminished field of vision, dilated pupil, pain, etc. These call for local treatment, surgical or medical, or both. Typical of the first is iridectomy; of the second eserine.

As to the value of iridectomy in chronic simple glaucoma the studies of Dr. C. S. Bull (Trans. Amer. Oph. Society, 1889) are very conclusive. He gives the history of ninety cases treated during a period of seventeen years—all of which he was able to study for a considerable period after operation.

Vision was temporarily improved in two cases in both eyes; in six cases in one eye; but in all the eight cases a steady loss of vision and a narrowing of the visual field set in and continued progressively so long as the patients remained under observation. The vision remained unchanged in eight cases in both eyes and in twenty cases in one eye. Vision grew steadily worse in forty cases in both eyes and in forty cases in one eye. Vision grew rapidly worse after operation in two cases in both eyes and in one eye in eight cases.

Of the 180 eyes only ten eyes were at all improved by the iridectomy and these steadily grew worse. In thirty-six eyes the vision was unchanged for a year after the iridectomy.

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In 120 eyes vision grew steadily worse after iridectomy, while in twelve eyes the vision grew rapidly worse after iridectomy. It is thus clear that in chronic simple glaucoma iridectomy is far from a brilliant success.

Of the comparative value of eserine and iridectomy in simple glaucoma an excellent study is given by Drs. Zentmayer and Posey (Will's Eye Hospital Reports, Vol. I). One hundred and sixty-seven cases are reported from the service of Drs. Norris and Oliver.

Sulphate of eserine was used in all cases when well borne and was continued for years. At first the doses were small, being increased or diminished according to results. The cases irritated by its use were treated by iridectomy. When well borne it improved central visual acuity in 62.16 per cent. of cases, while it retained vision unaltered in 21.62 per cent.; in 16.21 per cent. it was powerless to prevent decrease of vision. In 85 per cent. of the cases it diminished intra-ocular tension.

The visual field improved in 50 per cent. of the cases; remained stationary in 18.75 per cent., and steadily diminished in 31.25 per cent.

When well borne, eserine kept the fields improved ten months, and vision fifteen months. In cases not improved, fields remained stationary for three months, vision for thirteen months.

Iridectomy improved 60 per cent. of cases; did not change 20 per cent.; failed to prevent loss of visual acuity in 20 per cent.; diminished in ten per cent.

Tension improved in 90 per cent. of cases. The improved visual field lasted on an average eighteen months; the degree of visual acuity twenty months after iridectomy.

These facts show that it is advisable to employ eserine, when well borne, for a month; if the field of vision has diminished, nothing further can be hoped for from eserine, and an iridectomy must be done. If there be an improvement of the visual field eserine should be continued, as there is reason to expect a beneficial action for ten months upon the extent of the visual field and fifteen months upon the visual acuity. In

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half the cases we may expect iridectomy will check the course of the disease for eighteen months. Ten per cent. of the cases will not be benefitted by either eserine or iridectomy or both. Both successfully reduce intra-ocular tension. Thus in simple glaucoma we have the following elements of management:

(1). In every case make the nutrition of the entire body as perfect as possible, by removing all removable defects of excretion or secretion; disturbances of digestion; constitutional dyscrasias, as gout, rheumatic gout, syphilis, etc. Medicines avail much, but wise regulation of diet, exercise, sleep, bathing, etc., will generally be more efficient;

(2). Place the affected eye under the influence of eserine, if well borne, and keep it there so long as it controls the tension and prevents a diminution of the field of vision. This failing

(3). Do a large upward iridectomy, and follow with eserine if well borne, while any manifestations of the attack continue. This failing, a sclerotomy anterior may be done;

(4). Correct and keep corrected all defects of refraction and muscular balance.

Acute inflammatory glaucoma presents a remarkable likeness to acute inflammatory gout, just as simple chronic glaucoma resembles rheumatic gout. A typical case profoundly impresses the observer. The following is given because the attack could be studied from inception to close.

On March 29th, 1880, Dr. Fletcher placed in my care a boy aged fifteen, suffering from an injury to his left eye by an exploded gun cap. The eye was operated upon and the wound treated at a hotel under the care of his father—a man forty-five years old, of unusual intelligence. Aside from a history of sub acute rheumatism at irregular intervals, his general health had always been good, permitting him to excel in his calling as a farmer. His eyes were astigmatic, hyperopic and presbyopic, though he wore merely a simple spherical glass to correct the same, selected by the skill of a jeweler. While watching his suffering child, he read much in a poor light. While he said little he was greatly worried

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over the condition of his boy. On the morning of April 3d, five days after coming to Detroit, he complained of slight discomfort in his left eye and thought that at times his vision was dulled. A careful study of the eye revealed a slight intra and extra-ocular congestion, with a trifling increase of tension. A saline cathartic was administered; a soothing lotion ordered applied hot to the eye at short intervals; the eye protected from bright light and small doses of quinine administered internally.

On the following day the eye was worse in all respects; the pain in and about it had become intense; the pupil dilated and very sluggish; the tension great, plus 2; the field of vision contracted; the cornea insensitive; the anterior chamber very shallow, the iris being crowded into the anterior angle which was filled from behind with the ciliary body; the anterior ciliary vessels much dilated; the entire circum-corneal margin of the sclerotic covered with dilated blood vessels; the fundus oculi was as red as engorged vessels could make it, the optic papillæ being considerably swollen; the retinal arteries pulsated on the slightest pressure of the eyeball. Patient could not count fingers and complained of flashes of light when the lid was closed and rings about the light when the lid was open. Thus we had a case of typical acute glaucoma. To reduce the intense congestion several ounces of blood were at once abstracted by the artificial leech from the temple, relieving the pain as well as reducing the tension. A drop of a two grain solution of eserine was ordered placed in the eye every hour while the pupil remained dilated. Previous to each dose the eye was soaked in hot water for five minutes. These measures so modified the attack that the patient was more comfortable on the following day; but the tension was still above normal; the fundus could not be seen with the ophthalmoscope, and the eserine had failed to keep the pupil contracted.

An immediate iridectomy was now urged but was firmly rejected. Local abstraction of blood was repeated, a saline cathartic given and the other treatment continued, but with less effect than on the previous day. Iridectomy was urged

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at each visit, but rejected until the sixth day of the attack. Then vision was reduced to a mere perception of light; the media cloudy; pupil widely dilated; iris immovable; anterior chamber very shallow; cornea steamy and insensitive; great circum-corneal injection and very severe pain.

Because of the shallow anterior chamber a von Graefe's cataract knife was used to make the corneal incision, which was done upwards so as to admit the removal of a full third of the iris. This was drawn out of the wound by the iris forceps till it was placed upon the stretch, and then divided with Wecker's scissors by two separate movements, close to the sclerotic. The angles of the wound being freed from the remaining iris the lid was closed and the eye protected from injury by a light bandage. The little aqueous that escaped had a straw-like color. The pain immediately disappeared never to return, the wound healed kindly, the vision gradually improved until it was equal to that in the other eye, the iris regained its normal position, color and mobility, the lens returned to its wonted place, the cornea became transparent, the optical disc and retinal vessels resumed their wonted thickness and color; in short the entire eye resumed its former condition aside from the mutillated iris. The cure of the attack was complete, though the disease still remained—just as the operation for strangulated hernia cures the strangulation but does not restore the normal opening into the abdominal cavity. To prevent future attacks the following measures were adopted :

(1). His defects of refraction were fully corrected and the correction ordered worn constantly;

(2). He was placed upon a diet and habit of life such as would tend to eliminate the arthritic taint. Such remedial agents were ordered as would promote the same end.

There was no recurrence of the attack in the left eye, nor did one develope in the right eye—the case remained cured during many years, until his death from an acute disease.

In this case we have an arthritic disorder existing long anterior to the acute attack of glaucoma, in a man who had reached middle life, suddenly subjected to intense mental

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worry and marked eye strain. Without the last two factors he might have escaped the attack, but with them the secretion of the vitreous was so modified as to clog the connective tissues of the suspensory ligament and optic disc. This was followed by an accumulation of secretion and enlarged blood vessels in the posterior chamber which pushed forward the ciliary body, the lens and iris, and forced the aqueous out of the anterior chamber. An iridectomy removed this obstruction to such a degress as to admit of the normal circulation of the intraocular fluids. No doubt the sudden change in the tone of the intraocular blood vessels modified the changes described.

The management of acute inflammatory glaucoma by constitutional remedies, eserine and iridectomy is satisfactory to patient and surgeon if only it can be applied promptly at the outset of the attack. Sub-acute glaucoma, inflammatory, differs mainly in degree from the acute. We find moderate degrees of vascular obstruction and some sharp pain, an enlarged and sluggish pupil, increased tension, shallow exterior chamber, hazy vitreus, pitted optic disc in varying degree. The following abstract of a case places it fairly before us:

Mrs. F., age 70, seen first October 22, 1885; large fleshy person of Hebrew extraction, and for many years a more or less constant sufferer from rheumatic gout, but otherwise perfectly healthy. At an indefinite period anterior to her visit to me she had noticed occasional obscuration of vision, a little redness of the eyes, rings about lights, and some pain. At first the attacks were infrequent, but of late they occurred almost daily, and the vision had become very poor. Vision of right eye was 10-200ths, of the left 6-2100ths, pupils widely dilated and almost immovable, aqueous cloudy, tension of right eye two and left eye one, fields of vision greatly contracted, much circum-corneal injection and enlargement of the anterior ciliary vessels.

She was given a mercurial cathartic, followed by full doses of salicylate of soda—her diet regulated so as to secure the best possible digestion. Her skin and bowels were also so

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looked after as to enable them to perform their normal functions.

Locally, eserine, one grain to the ounce, was dropped into each eye every hour until the pupil contracted, and then as frequently as was needed to keep it so. Before using the eserine the eyes were ordered soaked in hot water for five minutes each. These remedies so acted that on the following day all symptoms were improved and in two weeks the eyes had become nearly normal in appearance aside from the cupping of the optic discs. On correcting the hyperopic astigmatism and presbyopia her vision was, right eye, 20-40ths; left eye, 20-50ths, and she could read Jaeger No. 2 with each eye.

On recovering from the attack she was directed to wear the correction for her ametropia constantly, to continue her anti-gouty diet and mode of life and to use a weak solution of eserine once daily if the eye seemed at all uncomfortable. She has been faithful in following directions and ten years later reported no return of the disease and fairly good sight.

I have met many cases of syphilis that fell within this class and were successfully managed by the use in a vigorous manner of anti-syphilitic in addition to the local treatment. But in many cases of sub-acute glaucoma such treatment fails and resort must be had to iridectomy. If the cases can be kept under close observation and the fields of vision do not diminish and other symptoms improve, it is safe to wait until eserine and constitutional agents are clearly futile ere doing an iridectomy, but it were better to do the operation too early than too late. But if the case cannot be carefully watched the iridectomy should be done without delay except in case of a degenerated iris, when the operation is disastrous.

Absolute glaucoma presents a notable picture; eyeball of stony hardness, devoid of all expression; blindness complete; pupils widely dilated and immovable; pupillary space filled with the glistening opaque lens; sclerotic of marble whiteness streaked with the tortuous and enlarged ciliary vessels; the glaucomatous process has done its worst. No treatment remains except such as will render the patient more comfort-

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able, which may necessitate a sclerotomy, an iridectomy or an enucleation.

We cannot discuss glaucoma which is secondary to other local diseases or injuries to the eye, each of which must be managed according to its specific indication, the object in each case being the restoration of a normal circulation through the chambers of the eyeball.

Pertinent to the management of glaucoma is a brief note on the technique of the operations for its relief. In glaucoma the iridectomy differs materially from iridectomy done for optical purposes in that it needs to be as large as possible and the iris removed close to its scleral attachment. Owing to the shallowness of the anterior chamber great care is taken to make the corneal section so as to avoid wounding the lens; otherwise grave consequences are likely to follow. In most cases I have found Von Graefe's cataract knife preferable to the lance shaped knife, as by its narrow blade one can skirt the angle of the anterior chamber and make as large a section as desired—always to be done in the sclerotic.

When the anterior chamber is of nearly normal depth the lance shaped knife may be used, or the Graefe knife used as in making the section for cataract extraction. In all cases it is desirable to withdraw the blade as slowly as possible to avoid too sudden a freeing of the tension in the posterior chamber. On completing the section the iris is seized by the forceps and drawn till it is fully without the eyeball, then by a couple of movements of the scissor blades it is divided close to the sclera. Especial attention is given to the edges of the wound that they do not retain any portion of the remaining iris. Formerly a general anaesthetic was required in the doing of an iridectomy in glaucoma, but now cocaine suffices if the patient be controlable.

Anterior sclerotomy is possible only when the pupil is contracted and the anterior chamber of nearly normal depth. A Graefe cataract knife is introduced about two millimetres above the horizontal chamber of the eye and a counter puncture made directly opposite. By gentle movement the knife is made to cut its way till it has nearly reached the surface

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when its withdrawal completes the operation. This operation is especially useful in cases threatening great hemorrhage, or after iridectomy has failed.

Posterior sclerotomy is done by opening the sclerotic between the lower and external recti muscles and posterior to the ciliary processes. The blade of a Graefe cataract knife, having been entered horizontally through the sclerotic, is turned at right angles and slowly withdrawn. Some fluid or vitreous may follow, and so the tension of the eye be reduced so as to admit of an iridectomy otherwise impossible.

Numerous other operations have been done for the relief of glaucoma; thus a large portion of the sclerotic at the anterior angle has been divided from within and good results reported. The ciliary body has been divided, the cornea has been punctured at each end of the vertical and horizontal meridians, the supra trochlear nerve has been stretched. But after all iridectomy furnishes in the ordinary case the largest hope of relief.

Lately Dr. Gould has proposed the use of massage of the eyeball for the purpose of freeing the outflow spaces of the debris clogging their meshes. He reports one case in which the results at date of writing were satisfactory. To a certain extent all the operations mentioned exert a massage at the point of greatest obstruction and doubtless in this way produce their effects. Patients however will be glad if massage shall prove able to supplant iridectomy.

Dr. Pilgrim advocates with much show of reason the local use of the galvanic current, placing the negative pole over the affected eye and the positive at the nape of the neck. In three cases of acute inflammatory glaucoma he reports the happiest results. He thinks that the current modifies favorably the obstructing fluid and the obstructive connective tissue at the outflow spaces.

My own experience supports the claim of Dr. Sutphen that salicylate of soda often relieves the severe pain of glaucoma, and accords with the fundamental idea of this paper, that the foundation of glaucoma is a constitutional dyscrasia,

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which should be sought out in every case and removed so far as possible.

CONCLUSIONS: (1). In the management of glaucoma, such attention should be given the bowels, skin and kidneys as to secure the most prompt and complete elimination of the effete tissue metamorphoses. The diet should be so regulated as to admit only such articles as can be perfectly digested and such amounts as will permit such digestion. The liberal use of water internally and externally in many cases may be made to greatly assist in restoring the fluids of the body to a reasonable degree of purity. The continuance of such diet and mode of life affords the largest hope of preventing future glaucomatous attacks.

(2). Such medicines should be employed as are called for in removing the constitutional dyscrasia found in each case, as arthritic, specific, etc.

(3). In simple glaucoma with no increase of tension such treatment may suffice, but should there appear increased tension, diminished visual field, pain, shallowed anterior chamber, myotics should be first employed (if they can be constantly watched), and if they keep the symptoms under control nothing farther is called for. But if they are not well borne or if at the end of a month the visual field has diminished then an iridectomy should be done. If the tension still persists a sclerotomy should be made and myotics again employed.

(4). In acute inflammatory glaucoma the tension must be promptly reduced by general treatment and myotics if possible, but if these fail immediately to reduce the tension and keep it reduced an iridectomy must be promptly done.

(5). Sub acute glaucoma is managed along the same lines as acute except that operative action may be delayed a longer period, though the rule should not be deviated from which demands an iridectomy in all cases that fail to improve under general treatment and myotics.

(6). Chronic glaucoma is managed in the same manner as the subacute except that iridectomy is contraindicated in

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cases of degeneration of the iris, the results of operation in such cases being unfavorable.

(7). Absolute glaucoma is treated only for the relief of pain; if salicylate of soda fails to relieve, the treatment is exclusively surgical, sclerotomy, iridectomy or enucleation.

(8). Hemorrhagic glaucoma is rarely benefitted by any operation, owing to the rotten condition of the intraocular blood vessels. Hence if general and local medication fail and pain persists, enucleation is the only resource.

9. Secondary glaucoma calls for specific treatment according to the condition inducing it. If it be an intraocular tumor, enucleate the eye; if it be a swollen lens from decission, extract the lens; and so through the list.

(10). Finally, he who would do the most for a case of glaucoma must not only be able to quickly detect the acute outbursts of the disease and apply the local remedies, or do the operation which will quickest and surest restore the normal intraocular current; but he must be able to recognize the constitutional dyscrasia which underlies and renders possible the acute outbursts, and put in operation such measures as will most effectually either remove or diminish its baneful influence. To accomplish this end calls for the largest skill and most abundant hygienic and therapeutic resource.

NOTE—Introductory to reading this paper diagrams were exhibited showing the anatomical relations of the blood vessels of the eyeball and the intraocular fluids. The course of the latter through the optic disc posteriorily and through the suspensory ligament, Fontana's spaces, Schlem's canal and hence to Tenon's capsule anteriorly, was thus made evident. Illustrative of one cause of secondary glaucoma, a fine fresh specimen of intraocular melano-sarcoma was shown.

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DISCUSSION OF DR. CONNOR'S PAPER.

DR. BAKER, Bay City: Mr. Chairman—I think this paper is one which is deserving of discussion for several reasons; not only because of its valuable character, but because of the fact that glaucoma and its management has not to my knowledge been discussed before this society for a long time, and perhaps not at all; because glaucoma is a disease which is very often overlooked by the general practitioner, and is one of the most serious diseases which affects the human eye; serious because of its frequency, the pain involved and more especially because of the loss of sight. Glaucoma is a disease, as the doctor has stated, which is dependant, according to the latest investigations, upon constitutional conditions, and I think the key note of the doctor's paper, that this is a disease eminently of gouty or rheumatic origin, is the true solution, at least in our present light, of the cause of the disease, its pathology and the indications for its treatment. We know that glaucoma is eminently a disease of middle and advanced life; we know that its time is the time when gouty diseases are prevalent; that time in life when nutrition has begun to fail; when the powers of elimination are lessened. Now we are taking, every human being who lives upon animal diet is taking into his system large amounts of material of a nitrogenous character, which tends, if not properly eliminated, to accumulate and set up in the system a state of localized poison. Now the point of election for this material to be deposited is in the connective tissue of the body. As the doctor has stated, the excretion or the elimination of fluid from the eye is through the connective tissue of the optic nerve and at the angle of the iris. You can easily see why then under these conditions gout should be the cause of this disorder; gout causing a deposit in the connective tissues, especially the joints; but the connective tissue of any part may

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be involved. The connective tissue of the eye is where this disease manifests itself. There is one thing to add, most of us do not see glaucoma in its inception; we see it only after it has advanced to a stage where the patient begins to suffer discomfort. But glaucoma exists long before that time, and very many patients have the loss of sight coming on so slowly and so painlessly as not to know that they are the subject of a serious eye disorder. Some go through life and die of some other disease without ever reaching the stage of pain, and we very well know that glaucoma is a disease which has certain cardinal diagnostic symptoms, and yet a case of glaucoma may be seen in which none of these symptoms may be present so marked as to be unmistakable. There is where the opinion of a skilled and experienced oculist is required in the management of these cases. It is a simple matter for a man of fair education in diseases of the eye to diagnosticate a case of acute glaucoma, at least it should be. But when it comes to these chronic cases, there is where the skill of the oculist comes in. I heartily agree with the position of the doctor in this paper that the management of the constitutional disorders which will check the advance of gout will be the most fruitful in checking the advance of glaucoma.

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AUTO-INTOXICATION IN DISEASES OF THE EYE.

DON M. CAMPBELL, M. D.,
Detroit.

Mr. President and Gentlemen: You and I, Mr. President, as well as every member of this great association now within hearing of my voice, must have been greatly interested in the progress of medicine and surgery during the last two or three decades.

We have followed its rapidly changing and always advancing strides with absorbing interest, recognizing in the shifting aspect of things medical a kaleidoscopic variety not lacking in brilliancy of effort and glory of achievement.

Anaesthetics and antiseptics, both local and general, have rendered daring advance in medicine and surgery practicable.

Not least interesting nor least productive of good have been the researches of histologists, physiologists and pathologists, these experimentalists having given us some of the real, though silently achieved advances of modern times, and upon the results of their labors as a scientific foundation have been reared many of the startling and brilliant advances of modern operative surgery and practical therapeutics.

Perhaps one of the most interesting class of experimentalists are those who have investigated the human body in health and disease, not stopping at the anatomical or histological elements of the tissues, but pushing their investigations with patient zeal and honesty into every organ and tissue fluid, excretion and secretion. To this list belong such names as Koch of Germany, Bouchard and Pasteur of France, and a score of others equally as conscientious and equally as devoted.

I wish at this early stage to acknowledge Bouchard's excellent work on "Auto-Intoxication" as the source of much of

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my information bearing upon the experimental and general aspects of this subject.

By auto-intoxication is meant the poisoning of the individual by toxic substances formed and elaborated within his own organism. The accumulation of these poisons in the organism may be due to their over or too rapid production in the tissues, their too rapid absorption from the alimentary canal, or their too slow or inefficient elimination from the organism by means of the various emunctories, viz., the skin, the bowels, the lungs and the kidneys, the latter emunctory being perhaps the most important of all.

We are consequently lead in our investigation of these cases to inquire carefully into the condition of all four functions.

Having pushed our investigations in all these four directions, we now turn our attention to the *sources* of the poisons by which the organism is being intoxicated, and we find them emenating from four directions, viz., (1) disassimilation constantly going on in all the tissues; (2) secretions such as the bile and the intestinal juices; (3) absorption from intestinal putrefaction; (4) poisons introduced into the organism with the daily food and afterwards multiplied and elaborated within the intestinal tube and absorbed therefrom.

It is shown by these investigations that the organism is constantly elaborating these poisons, which if retained would surely be fatal to its integrity; but nature in her wisdom has built up and developed organs to meet and counterbalance these effects, so we find the various emunctories ready day and night to eliminate the products of disassimilation.

The skin, the lungs, the kidneys and the bowels are constantly eliminating these poisons as quickly as they are formed.

In addition to the emunctories the liver stands always ready to intercept and destroy many poisons absorbed from the alimentary canal. In this connection one cannot but be forcibly struck with the fact that modern investigation along these lines has confirmed and rendered scientific many empirical therapeutic procedures employed by our forefathers in

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the profession. Many in this hall today have a very vivid recollection of the stock in trade of the old family doctor, who, God bless him, was a terror to our young hearts and a solace to the more experienced ones of our mothers, anxious for our welfare.

His panacea for all ails was a mercurial at night and a saline in the morning, and with what satisfaction he would watch our ill-natured grimace at the noxious dose, knowing full well that our headache, fever, anorexia, sleeplessness and general malaise would be improved when the intestinal tube was emptied of its putrifying contents. While this plan of treatment was entirely empirical with the old family doctor, modern research has shown it to be eminently scientific, for by what better means can you expel the putrifying masses loaded with bacteria and their poisonous alkaloids than the means which he employed? Or can we with our more modern and more elegant system of therapeusis obtain a quicker or more thorough sterilization of the intestinal tube than he with his methods? The history of the advance of medicine bristles with many such interesting examples.

It has been conclusively shown that almost or quite all the tissues of the body suffer inflammatory reaction in the event of auto-intoxication by the poisons produced as above indicated.

In some forms of poisoning it is the nervous system which suffers most, in some the vessels; and in still others the fibrous tissues of the body are the chief seat of the inflammatory reaction.

It would perhaps be a waste of valuable time for me to discuss even briefly all the effects of auto-intoxication or auto-infection noticeable in the eye.

The various effects upon the lids, upon the conjunctiva and the cornea, of digestive auto-intoxication have been gone over again and again. Diabetic cataract, rheumatic iritis, and the various affections of the choroid are quite familiar in this connection, as are also the dire results of the interference with the renal functions upon the retinal and optic nerve elements.

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But there is one class of cases involving the sclerotic coat, the ciliary body and the iris which should demand careful and painstaking investigation. Embraced under this head are such diseases as episcleritis, scleritis, cyclitis and relapsing or recurring iritis.

Episcleritis and scleritis I have already dealt with in a paper read before this society some two years ago, entitled "Some Rheumatic Affections of the Eye." The added experience of 2 years of active practice has not changed my views on these subjects.

I wish however to draw your very particular attention to relapsing or recurring cyclitis, irido-cyclitis and iritis. In this disease we have a pathological condition of the tissues of the iris and the elements situated at its base, extending frequently into the sclerotic coat and episcleral tissues.

The clinical history of a typical case of recurring iritis shows clearly enough that the real origin of the ocular trouble is not in the eye itself but must be sought elsewhere.

Many of these cases present permanent posterior synechia, left from previous attacks, which has by some been looked upon as the prime cause of the recurrence of the inflammation; hence many iridectomies have been done for the cure of the trouble. But two facts now known to all close observers would indicate that such is not the case. (1) Many cases of simple iritis leave behind them one, two or more posterior synechiæ and yet we never have recurrence of the iritis. (2) There have been many cases of recurring iritis with posterior synechia upon whom iridectomies have been performed, and yet the iritis recurs just the same. I have in mind an interesting case bearing upon this subject. This patient has been subject to recurring iritis, for many years, in both eyes. The right iris is quite firmly bound down by posterior synechia, the left one is perfectly free; yet for the last two or three years he has had no attacks of iritis in the right eye, all the trouble now being confined to the left eye in which the iris is perfectly free.

If now we observe our patient, not his eye, in short, be a physician not merely an oculist, we will find that there are

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other symptoms of general derangement occurring not only at the time of the attack but previous to it, and in general terms those symptoms will be as follows: General malaise, anorexia, inaptitude for work, constipation, indigestion, a coated tongue, a foul breath, a cold clammy skin, nervous irritability, and an anomalous urinary secretion.

This train of symptoms suggests strongly to our minds what has been said about auto-intoxication in the early part of this brief paper, and undeniably if we do but seek diligently for our symptoms of auto-intoxication in these cases of recurring iritis we will certainly find them, and they almost always can be traced to a defective physiology of the alimentary canal, and in many cases to an intestinal putrefactive process either with or without dilatation of the stomach.

The manner in which this result is brought about is somewhat as follows: An anomalous digestive process takes place in the alimentary canal which gives rise to putrefactive changes; poisons are elaborated which are absorbed into the portal circulation, pass through the liver where many are destroyed; some are thrown back with the bile into the intestinal tube and eliminated, the remainder pass into the general circulation and in the normal state are eliminated by the various emunctories.

If now for any reason the balance between various factors be disturbed; if, for instance, more poison be elaborated or absorbed than the liver or the emunctories can take care of, or the latter be derelict in their duty, the individual becomes at once the subject of an auto-intoxication if poisons be absorbed, or an auto-infection if the microbes enter his circulation, and the delicate anatomical and histological elements entering into the formation of the eye suffer along with the other tissues.

With this view of the situation before us how picayune do our efforts at local treatment and surgical interference appear with reference to preventing the recurrences. To prevent recurrence we must strike deeper than the eye itself, in short we must reach the original cause of the auto-intoxication if we are to permanently benefit our patient.

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The practical outcome of all this investigation is seen in the manner in which we treat these cases, for we are no longer satisfied with local treatment alone, applied after the trouble has again manifested itself by a fresh exacerbation.

While we cannot lay down hard and fast rules for the management of all cases, certain general fundamental principles may be enunciated with advantage, always of course with the proviso that each and every case must be a law unto itself and the subject of a close and scrutinizing examination into all the bodily functions.

The alimentary canal should be investigated and any anomalous condition thoroughly corrected and the tube kept functionally active and free from putrefaction.

The liver should receive as much attention as may be necessary, general hygiene and diet carefully looked into, and lastly all the emunctories kept active. The skin and the kidneys are particularly to be kept in mind. We have at our very doors here in Michigan a means of greatly helping those individuals suffering from auto-infection or auto-intoxication. I refer to the mineral bath with massage as carried out in the various bath houses of Mt. Clemens.

The baths act in two ways: firstly, they stimulate the function of the skin as an emunctory, and secondly, the nervous system is stimulated through the effect of the massage upon the vast number of nervous filaments distributed to the skin.

The effect of general electrical stimulation might be of advantage in strengthening the functions of nutrition.

The kidney should be kept functionally active, as in it we recognize one of the chief emunctory organs.

There is a form of treatment employed by certain German Ophthalmologists which consists in sending these patients to a watering place, giving them mineral baths with massage and a daily hypodermic injection of potassium iodide and biniodide of mercury. In the latter procedures the object aimed at seems to be a general systemic antiseptic suturation.

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DISCUSSION OF DR. CAMPBELL'S PAPER.

DR. LEARTUS CONNOR: Mr. Chairman and Gentlemen—While Dr. Campbell and myself did not compare notes in preparing our papers, it is evident that our minds followed the same general trend, viz., the relationship of chronic nutritive disturbances to organic ocular disease. For many years I have been accustomed to note the lack of transparency of the ocular media in persons suffering from chronic malassimilation, the dirty blood furnished the eye vitiating the clearness of the vitreous lens and aqueous. It is but reasonable that the causes of this change, if continuing long enough, may induce scleritis, episcleritis, glaucoma or other intra-ocular or extra-ocular affections.

Before Von Graefe's discovery of a local cure for a glaucomatous outburst, the treatment was mainly constitutional. That discovery claimed such attention that for many years attention has been fixed upon local treatment. Now, however, the pendulum is swinging back again to the constitutional study and management of these diseases, taking with it all that has been learned respecting the local treatment. That better results will follow we are assured.

DR. FROTHINGHAM: Mr. Chairman—I wish just to add the testimony of my experience to the views that have been presented in the two papers which have just been read. I was not fortunate enough to hear all of the first paper, but as Dr. Connor has said, we are returning to general principles and to constitutional treatment in many of these cases where once operation was considered to be essential. The ophthalmic world went, as we may say, wild over the introduction of iridectomy as a remedy for glaucoma, and it was practiced indiscriminately. And I don't know but I may repeat what was said once by an obstetrician who was lecturing to his class on the use and abuses of ergot in obstetric practice, and

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at the close exclaimed, "I am glad we have ergot, but I am not very glad." And so we may be glad that we have had iridectomy proposed and practiced as a remedy for glaucoma, but when we consider the harm that has so often resulted from it as shown by reports, and from our personal observation, and also consider that very many cases of the kind probably never have been reported, we may say, especially in a certain class of cases, that we are not very glad. Take acute glaucoma, and inflammatory glaucoma, it is *the* remedy; but there is a certain class of cases which we have hardly time here to consider the full pathology of, the theories have been so many and the literature of the subject so voluminous, that goes on without perceptible increase of tension, and that comes on gradually with many of the symptoms of chronic glaucoma, in which iridectomy can do no good, but may do much harm. Now what I wish to say in brief is that the experienced ophthalmologists the world over have come to regard this operation as a very doubtful remedy for simple and chronic glaucoma, and some have considered, so far as operation is concerned, that we can hardly offer any hope in these cases; and others, while stating to the patient that such is probably the case, yet make the operation hoping that it may have some effect in retarding the disease. But no doubt so many cases have been unwisely operated upon where the disease has been hastened that it is a question whether, all things considered, the operation has been productive of more good than evil. But we are beginning to find that the constitutional conditions are real elements to be considered even in the matter of increased tension, and we find that remedies such as salicylate of soda to remove rheumatic and gouty deposits, and eserine to contract the pupil so as to lessen the obstruction to the lymph channels, are the remedies that produce the best results, and we are more conservative in that class of cases. But still in that class of cases there are at times increase of tension more or less pronounced, and an operation is advisable as offering some chance of relief.

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A CLINICAL CONTRIBUTION TO OUR KNOWLEDGE OF CERTAIN TUMORS WHICH ORIGINATE FROM LARGE NERVE TRUNKS.

C. B. NANCREDE, M. D.
Ann Arbor.

Recognizing both from personal experience and from a necessarily cursory review of the literature that cases similar to those whose histories I shall refer to are not common, it has seemed to me worth while to present them for your consideration, as they illustrate several points of pathological and clinical interest. It must be clearly understood that I am referring only to growths springing from nerves in their continuity. It must also be understood that I am considering neoplasms which spring from the fibrous and connective tissues of the nerve trunks, because I am unaware of any recorded cases where tumors of any magnitude have been reported in which the bulk of the tumor was composed of newly formed nerve fibres.

From this follows two important facts, viz: That the tumors I am speaking of belong to the connective tissue class of neoplasms, and that, as they start from tissues surrounding and not constituting the functioning elements of nerves, these tumors may and often do develop in such a manner as will separate the structures without destroying the functional continuity of the nerve itself. Moreover, it must be patent that if there is neither marked disturbance of the sensory nor motor functions of the nerve it should be an operative possibility, in many instances, to remove these growths without section of the nerve, howsoever thoroughly incorporated in the growth it may appear. Although resection and suture of

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large nerves is usually successful, the procedure is not always harmless, and I am satisfied both from the pathological necessity as to their development and from my clinical experience that it is very often possible to remove large tumors originating from nerves with but little or no loss of function resulting.

Although rapidity of growth and the nature of the parent tissue suggests the probability that a given growth may be sarcomatous, and that therefore free excision is indicated, my cases, with many others on record, conclusively demonstrate the fallacy of this argument; and it must never be forgotten that myxomata and fibromata, as well as sarcomata, originate from connective tissue. Clinically, when, as I have said, little or no disturbance of nerve conductility has resulted from the neoplasm the patient should usually be given the benefit of the doubt and the growth be removed without section of the nerve.

I will now give abstracts of the history of two cases: Ida H., age 18 years, was admitted to the University Hospital, Ann Arbor, February 6, 1893, for relief from a tumor situated upon the inner side of the right arm just below the axilla. About seven months previously her arm had been caught between a falling window sash and the sill. From her account a localized hematoma evidently formed immediately which was imperceptibly replaced, as it were, by the tumor which must have been of very rapid formation at the outset, because when the effects of the contusion had passed away a growth was clearly perceptible; this continued growing until her admission when it was doubled in bulk and about the size of an egg. No disability had been noticable until within the previous two weeks, since when she insisted that she could hardly use her arm, yet there was no real paresis or paræsthesia. Examination showed that the tumor was evidently connected with some nerve trunk as it was located in the course of the arm nerves and was freely movable laterally but not longitudinally. It was not tender, nor did pressure produce any evidence of nerve implication except that there was an obscure sensation as of a cord-like structure passing

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obliquely across the tumor which could be moved laterally but not longitudinally; hence this was believed to be a nerve overlying the tumor, pressure upon which might account for the alleged disability. The diagnosis was that of some variety of connective tissue growth. Upon operation and subsequent examination the growth proved to be a fibro-lipomas pringing from the sheath of the internal cutaneous nerve which it completely encircled necessitating splitting of the mass and careful dissection of the nerve for at least two inches. The cord-like structure felt before operation proved to be the median nerve overlying part of the mass. At first it seemed impossible to remove the tumor without exsecting a portion of the internal cutaneous nerve, but a small expenditure of time and trouble resulted in success. Prompt union occurred with complete relief of all the previous alleged disability, no paræsthesia existing in the area supplied by the internal cutaneous nerve. While it is perfectly true that division of this nerve would not have entailed consequences of any importance; yet upon principle I never destroy that which can be saved, and I was desirous of ascertaining whether nerve function could be preserved in similarly unpromising cases implicating more important nerve trunks.

The second case which I propose citing presented the history, so frequent for sarcomata, of a tumor developing in a youth and continuously and rapidly increasing in bulk. Yet nothing but a benign growth existed, not even cystic change being detectable which so often accounts for rapid enlargement of innocent tumors. W. L., age 18 years, a farmer, entered the University Hospital June 18, 1893, and was discharged cured July 11. About two years before coming under my care he had first noticed a mass in the right popliteal space of the size of a walnut which was not painful unless struck. Within the past year he has noticed occasionally radiating pains reaching the toes when pressure was made over the growth. The tumor has grown quite rapidly for the last year, is now about three inches long by two in its transverse diameter, and is movable laterally but not longitudinally; there is no evidence of paresis or paræsthesia. The

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operation revealed a fibroma springing from and somewhat underlying the popliteal nerve, some of whose elements were spread out so as to partly envelope the tumor. Careful dissection enabled me to enucleate the neoplasm without inflicting any permanent injury upon the nerve. For a time the patient complained of an occasional sense of numbness in his toes, but it was so vague that we failed to determine whether any real anæsthesia was present, being inclined to think that not the slightest existed. Here again is a case of a rapidly growing tumor in a youth, without cystic change to account for quick growth, yet innocent, and while seriously involving the nerve so at first sight to render it improbable that its removal could be effected without permanently damaging the nerve function, it admitted of ablation without real injury to the nerve elements. While I am well aware that each case of nerve tumor must be a rule for itself, I cannot but believe that if less stress were laid upon the rapidity of growth in the young as indicative of malignancy, and if, in the case of tumors springing from nerves, a determined effort were made to remove such without section of the nerves, reserving this measure as a last operative resort if insuperable obstacles were encountered, or if during operation unquestioned evidences of malignancy are discovered, many cases could be treated as I did mine.

In conclusion I wish to reiterate that in cases of tumors springing from large nerves, when there is no evidence of distinct damage to nerve conductility, an infiltrating, *i. e.*, a malignant neoplasm is to say the least improbable; and that many tumors which resemble sarcomata of nerves, so far as their history goes, can safely be treated without exsection of the implicated segment of nerve.

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THE CHROMOSCOPE.

A NEW INSTRUMENT DESIGNED FOR A READY TEST OF COLOR PERCEPTION.

L. E. MAIRE, M. D.,
Detroit.

The instrument I exhibit I have for convenience called a chromoscope. It is designed as a means to obtain a ready test of color perception. Its construction is very simple, making use of well-known optical laws, producing a display of natural colors by decomposition of the rays of light.

The instrument consists of a fenestrated card or window and the chromoscope proper. The fenestra of the card are of different widths and so cut as to measure or regulate the amount of light passing through the chromoscope. The wider the fenestra the purer the color; in the narrower fenestra the colors are blended producing shades of the original colors.

The chromoscope proper consists of a prism whose sides are $1\frac{1}{4}$ inches in width, its length being $4\frac{1}{4}$ inches. This prism is placed in a convenient box at a suitable angle so as to receive the rays of light passing through the fenestrated card, decomposing them and showing at a glance the spectral colors.

To obtain the best results with this instrument the card should be placed in a large window up high enough to admit (unobstructed by adjacent trees or buildings) the passage of abundant daylight through the fenestra. The observer sitting before the window at a distance of six to seven feet holds the chromoscope before him and looks through it after

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the manner of the stereoscope, bringing the card in view. He will then observe the display of natural colors: the red, green, yellow, blue, indigo, violet, with faint orange, together with various blendings of these colors. It is better to expose the card in a modified light; too much sunlight weakens or dilutes the pure color.

The box containing the prism is partitioned off so as to aid in the concentration of the rays of light, also to produce a darkening or shade around the prism, absorbing in a measure superabundance of light.

The advantage of this instrument is that it gives us a convenient and quick test of color perception, saving the physician valuable time. It is not designed to displace the Holmgren's yarn test, which is valuable as a minute test for color blindness. With the chromoscope we are enabled to exhibit pure natural colors as they exist in sunlight.

I have used this instrument in my practice for several months and have found it of service as a color test. I have examined during the months of March and April, 1896, 121 railroad employes for aural and visual defects. They were employed as engineers, firemen, brakemen, conductors, switchmen, telegraph operators and station agents. From among the 121 individuals three color blind were detected. They were red-green blind. The discovery of this defect by the chromoscope was verified by the Holmgren test.

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DISCUSSION OF DR. MAIRE'S PAPER.

DR. MAIRE: In explanation I would say that this is the fenestra card (exhibiting card) which for convenience I have had framed to hang in the window of my office, placed in such a manner that the light should be unobstructed by trees or buildings. This (exhibiting instrument) is what I call the chromoscope, and consists simply of a prism so arranged as to receive the rays of light measured by the card. On looking through in this manner the openings are viewed very distinctly and show very clearly the colors I have mentioned. I constructed this instrument simply as a matter of interest to myself. Having paid a good deal of attention for the past two or three years to this subject, and having had the duty of examining the railroad employes of one of the large railroads entering Detroit, I have found this of considerable convenience, and those cases where I have detected color blindness were verified by the Holmgren test and also verified by the company's employes at long distance ranges. I hope that those interested will examine the instrument so that I may have their opinion upon it.

DR. FROTHINGHAM: Mr. Chairman, I think thanks are due to Dr. Maire for presenting this subject, but I am afraid discussion would be rather useless. I think he is about the only one present who knows anything of this instrument.

DR. MAIRE: The importance of studying the color sense is becoming more important every year; also the fact that we have some diseases of the nerves of the eye aside from the matter of visual defect in which we have a disturbance of some of these colors. I have had under treatment some six or seven cases of optic nerve disease in which the use of this instrument was found to act nicely in detecting early the disturbance of the color sense.

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SUBPERIOSTEAL SQUAMO-MASTOID ABSCESS.

O. A. LACRONE, M. D.
Kalamazoo.

The frequency with which the different parts of the temporal bone are attacked by caries and necrosis following suppurative disease of the tympanum, the intimate relationship of the structures of the middle ear and brain, and the many feasible routes for the entrance of germs into the cerebral tissues, are sufficient reasons, I trust, for referring again to a subject which has been thoroughly discussed but by no means exhausted.

Subperiosteal squamo-mastoid abscess generally occurs as the result of infection of the mastoid antrum and cells, the pus passing between the plate of the squamous which covers the antrum and the mastoid. The periosteum being more easily separated over the squamous than over the mastoid, the swelling occurs above the ear and so pushes out the upper part of the ear until it seems to drop below its mate and presents an angle of forty-five degrees to the head.

It is generally an acute process and presents a formidable aspect as the three cases recently coming under my observation will illustrate.

CASE 1. P., age 54; consulted me for a swelling above the ear so large as to push the upper part of the ear down and out until it formed an angle of about forty degrees with the head. He stated that two weeks before he had slight pain in the ear which soon subsided, but that the noises in the ear had caused him considerable uneasiness, and that for one or two days he had been suffering intense pain above the ear and in the eye of the affected side. I could discover no pus

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and no inflammatory action in the middle ear; the drum was not even congested. I directed hot applications, leeches, and an anodyne for the night, and in the morning found him resting comfortably well, no pain, temperature normal, and but slight tenderness on pressure. I ordered the hot applications continued and in a few hours was summoned to find my patient suffering intensely and considerably alarmed. I made a free incision at the lower and posterior angle of the swelling, down to the bone, at the junction of the squamous and mastoid portion, but could detect no pus. The depletion from the free hemorrhage which followed gave him relief and he rested well until two days later when the swelling rapidly extended over the mastoid. An incision was made down to the bone, a small quantity of pus escaped, and the bone was found to be eroded over part of the squamous and mastoid portion. The wound was cleansed and packed with gauze; and he made an uninterrupted recovery in a few days. The hearing which had been only slightly impaired soon returned to normal, and there has been no further inconvenience experienced since. There was no history of injury in this case.

CASE 2. I saw through the kindness of Dr. Rush McNair J., age 9, a robust boy who had suppurative otitis media following scarlet fever. The ear had been discharging freely for some three weeks when suddenly the temperature raised to 103; pain became very severe in the side of the head and face, and an immense swelling appeared above the ear extending forwards over the zygoma. An incision had been made over the ear through the periosteum, but no pus was found. Chills, vomiting and an increase of the swelling extending over the mastoid rapidly supervened. The sanitary conditions of the place were such that we decided to remove the child to the hospital where the following day we made a free incision over the mastoid and another over the anterior part of the squamous.

We found the entire temporal bone denuded of periosteum except the tip of the mastoid process. There was free communication through the antrum to the tympanum. A large quantity of dark colored pus escaped. The wound was thor-

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oughly irrigated with bichloride solution and a strip of gauze passed through both openings. The discharge from the ear soon ceased, temperature dropped to normal, appetite returned and the pain completely subsided.

All went well for a few days when the nurse accidentally withdrew the drainage in removing the dressing. Almost immediately the alarming symptoms reappeared. We inserted a new drainage tube and the boy made a good recovery in about three months; he has since been well.

CASE 3. A well developed and healthy child; age nine months; had suffered from pain in the left ear for a short time which soon subsided, and as there was no discharge from the ear no further notice was taken of it until two weeks afterward when a swelling suddenly appeared above and behind the ear. The temperature was 101, pulse 110, appetite good, but the child was unable to sleep well and would not lie on the affected side. I made an incision over the mastoid down to the bone and a considerable quantity of dark thick pus escaped. The mastoid and part of the squamous portion of the bone was denuded of periosteum and the bone eroded and of a greenish color. The abscess was thoroughly washed out and a drainage tube inserted. After two days the child was removed to its home in Otsego. Three days later when I saw the child again the tube had dropped out; there had been no pus since the second day. I washed the wound again thoroughly and as no pus escaped I did not again insert the tube. The child made a good recovery and has since had no trouble.

It will be noticed that in two of the three cases the drum had not been ruptured, and the pain had been so slight that no suspicion of middle ear trouble was entertained. It is not so strange that this should occur in a child where the plates of bone are connected by a fibrous matrix and the pus finds easy egress; but it is peculiar to find it in the case of a man fifty-four years of age, even though extensive and destructive inflammation of the middle ear may occur without rupture of the tympanic membrane.

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These abscesses are not common nor are they as dangerous as those affecting the antrum and cells. The acuteness of the attack and the severity of the symptoms demand immediate attention. Mastoid abscess, on the other hand, may be easily overlooked unless the inflammation be severe enough to destroy the mucous lining of the cells and attack the bone beneath.

Both varieties present easy roads for the entrance of pathogenic organisms to the brain—the squamo-mastoid variety through numerous veins which connect directly with the lateral sinus through the mastoid foramen, and the mastoid variety through thrombosis of the veins in the mucous membrane, when the inflammation is severe enough to produce that result, and by erosion and necrosis through the tegumen, antrum and sigmoid groove.

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DISCUSSION OF DR. LACRONE'S PAPER.

DR. FROTHINGHAM: I have been very much interested in listening to the report of these cases. The doctor has happened to have, I think, a little more than his share of them, and we all know they are among the most perplexing cases we have to deal with—to determine just where we shall open to find pus. Because of the condition of things there we often get fluctuation very closely resembling the fluctuation from an abscess under the periosteum and yet we will not find it. I think an opening should be made early in all such cases, and an incision should be made as deep as necessary down to the bone in all cases where we have this swelling. As I understood the doctor's cases the incision did not have to be carried very far forward—over the mastoid and above the ear and a little forward.

That is the only line of treatment that the doctor adopted in his cases, and his success demonstrates the correctness of it.

DR. MAIRE: Mr. Chairman: I would like to urge in this connection the importance of examining the zygomatic fossa in this class of cases. We generally expect to find symptoms of suppuration in the mastoid and its covering, behind the ear or over the ear. I had one case some years ago in which the symptoms were very much massed behind the ear; the patient died. A large abscess was found in the zygomatic process. I saw the case a day or two before death. The history was very obscure. I believe in all obscure cases of suspected suppuration the zygomatic fossa should be examined with an exploring needle.

DR. GREENE: I wish to say a word in relation to this paper, because it is a subject that has interested me very materially. This is a class of cases in which I have had quite a considerable experience. I notice in the Doctor's paper that he cut down to the bone and found no

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pus in one instance, and then waited for developments, but later found pus. I would like to ask the doctor when he closes the discussion of this paper to give us his idea of the source of infection; that is, where did the abscess originate? Where did the pus first form that caused this abscess in the temporal region?

He made an incision over the mastoid in another case he said, and found no pus, but later pus came to the surface; that a large part of the periosteum of the mastoid portion of the temporal bone, not only of the mastoid but of the squamous portion also, was denuded. Now I think that is a very important point for us to consider. Shall we neglect such cases until they go on and destroy the periosteum and give rise to diseased bone, which takes months for recovery; or when we have cases with pain, discharge from the ear and bulging at the upper and back of the tympanum, symptoms of mastoid suppuration, continuing for days and perhaps weeks, should we do a mastoid operation? When we make the incision over the mastoid, will we cut down to the bone and leave it, or will we go on into the mastoid cells? I believe whenever it is justifiable in diseases of the mastoid to cut down to the bone over the mastoid process, that, if you have not already got good drainage and found pus, it is proper to open the mastoid cells. I don't believe that external signs and symptoms are worth anything in locating pus in the mastoid cells. I believe they are delusive. I think that is the cause of our neglecting cases and the cause of many deaths. I believe that when there is external swelling, redness, œdema, etc., over the mastoid—which signs have been laid down in works on the ear ever since the days of William Wilde as a guide to operation—we have a case in which there is less necessity for an operation than there is in many cases where the external signs do not appear, because when there is external swelling, we have one of two conditions: either no pus in the mastoid cells whatever, but periostitis extending over the mastoid process from the external auditory canal; or else we have suppuration of the mastoid cells with perforation externally through the bone already taken place. In such a

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case as the latter nature has done the work and the surgeon has but very little to do. Perhaps Wilde's incision might be made in these cases, but the discharge will take place externally without it, and there is not so much liability to brain complications as in those forms where external signs do not appear. We have a better guide to the diagnosis of suppuration of the mastoid cells, and fortunately it can now be found in the latest work on the ear by Dr. Dench, in which he sums up the diagnostic signs and symptoms very concisely.

Opening into the mastoid cells is an operation "per se" practically devoid of danger if done after the modern method of opening into the antrum. I think whenever we have a trouble that points clearly to mastoid disease the antrums should be opened because if there is pus in the antrum it will heal up in a few days and you will never hear of it again if done under strict antiseptic precautions.

I will relate very briefly the history of a case bearing upon complications of suppurative disease of the middle ear and mastoid cells without external signs or symptoms. I was called to see this case by Dr. McColl and obtained the following history: He had been having neuralgia of the left side of the face for several weeks. Had been treated by internal medication and external applications with very slight relief. He had continued to follow his ordinary avocation until four or five days ago at which time he became delirious. Dr. Fuller was then called to see him and stated that he could find no indication of brain complication and advised them to send for me thinking the difficulty was from middle ear disease. On examination I found paralysis of the seventh nerve, exophoria of the left eye; he did not recognize anyone or seem to understand what was said to him. He had the signs and symptoms pointing to abscess of the temporal lobe of the brain over the petrous portion of the temporal bone.

There had never been discharge from the middle ear through the drum membrane until a few days previous to my visit. There were a few drops of pus in the auditory canal, a small hole in the drum membrane, a tympanum full of pus, a swelling at the upper and back part of the tympanic cavity;

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no swelling in auditory canal. My diagnosis was chronic suppuration in the mastoid cells, complicated by brain abscess. His people being informed of the liability of death either with or without operation, they decided to have the operation done. He was taken to the U. B. A. Hospital, and thoroughly prepared for operation which was made in the following manner:

An incision was made commencing at the zygomatic process, carried above the ear and down over the mastoid process, close to the insertion of the auricle, to the tip. A curved incision was then carried from a point above the auricle to the occipital protuberance; the flaps raised. I then opened into the mastoid antrum, evacuating about a dram of pus. The mastoid cells were decayed and softened. I then removed a button of bone from the skull at a point one inch above and three-fourths inch posterior to the external auditory meatus; the membranes bulged with considerable tension. I then enlarged the opening with a Ronguer forceps to the extent of $1\frac{1}{2}$ inches by 2 inches. A medium sized aspirating needle was then passed into the brain tissue to the depth of one inch where the pus was located. I then incised the membranes and the brain tissue to the depth of about one-half inch when the abscess cavity was reached and about $1\frac{1}{2}$ ounces of pus evacuated. The abscess cavity was then gently irrigated with sterilized water.

The man returned to consciousness about six hours after the operation, sat up and took a tumbler of water in his hand and drank it. The exophoria, which had been so marked before the operation, had entirely passed away. He answered questions. In this instance there had undoubtedly been a long existing mastoid abscess, which had drained through the middle ear and eustachian tube into the throat. A focus of suppuration in the brain had evidently been caused by the pus being carried from the mastoid cells. There were no external signs or symptoms of mastoid disease present in this case.

I believe very many deaths result from middle ear and mastoid suppuration which are never properly diagnosticated. It is the obscure cases that give us most fatalities; therefore

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we should strive to be able to detect them before they have resulted in permanent injury or caused death.

DR. LACRONE: The chairman has mixed up my cases a little. The case in which I made the incision and found no pus was in case No. 1. The incision was made at the junction of the squamous and mastoid portion, where the swelling was most prominent.

Undoubtedly the infection was from the middle ear, as the subsequent course of the case would indicate. In the other cases I found the communication with the middle ear was through the antrum where the squamous plate overlaps it. I do not think that it is necessary to open into the mastoid cells in all cases. In a good many cases the cells are not involved and a free communication with the middle ear is already established through the channel indicated.

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A NEW INSTRUMENT FOR THE TREATMENT OF DISEASES OF THE NOSE, THROAT AND MIDDLE EAR.

H. M. DUNLAP. M. D.
Battle Creek.

In view of the almost universal prevalence, in one form or another, of the class of diseases under consideration, and the serious and far reaching results which follow their neglect or inefficient treatment; and notwithstanding the fact that the field has already been entered by many of the ablest men in the medical profession, I offer no apology in presenting before you the instrument which I shall endeavor to describe.

If you will go back with me just thirty years we will arrive at a point in the history of medical science which is marked by one of the most important discoveries ever made in respiratory therapeutics.

I refer to the discovery of nebulization made by Dr. Oliver in 1866. The doctor found that by driving an atomized spray from a liquid of certain consistency against a hard, smooth surface, the minute drops were broken into infinitely smaller particles, thus transforming the liquid into a semi-gaseous state and producing a true visible vapor, or nebula as he termed it.

This vapor, while it is so light as to remain suspended for a long time in the air, yet contains all the elements of the original solution, the non-volatile as well as the volatile. By producing the spray within a closed vessel the vapor is retained and may be conducted through tubes for inhalation or application in various other ways.

In this manner medicinal agents of every character may be applied in actual substance to the respiratory mucous mem-

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brane in that state of infinite subdivision upon which our Homeopathic friends lay so much stress, and which, while we do not believe it changes the character of action, yet undoubtedly increases the activity and favors perfect distribution.

At the time Dr. Oliver announced his discovery the rank and file of the medical profession were not sufficiently progressive to take up a new method and demonstrate its value by clinical experiment, and hence it came but slowly into general use.

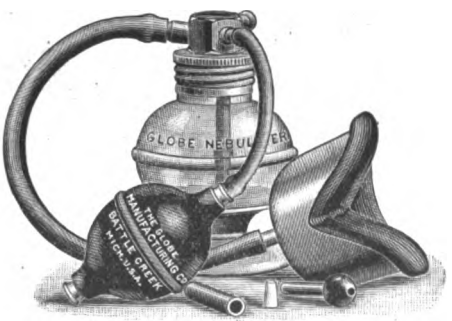
Among those who early recognized the value of the principle of nebulization in respiratory therapeutics was Prof. J. Solis Cohen of Philadelphia who demonstrated its usefulness both by clinical and labratory experiments.

During the past eight years I have constantly used in my practice nebulizers of various forms. The results obtained have led me to regard the method with continually increasing favor.

I experienced much difficulty in obtaining satisfactory apparatus, some being imperfect in one direction and others in another.

In 1892 I designed an instrument in which I endeavored to overcome the defects I found in others. It has met with some favor at the hand of the medical profession and it is quite extensively used in this country, Great Britain, the Dominion of Canada and to some extent in other foreign countries.

I show you here the instrument to which I refer. It is known as the Globe Nebulizer. I have received many letters from physicians reporting excellent results from its use in treating the nose, throat and middle ear. For the latter purpose many prefer it to Politzer's method.



ONE-FIFTH ACTUAL SIZE.

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Fig. 1.

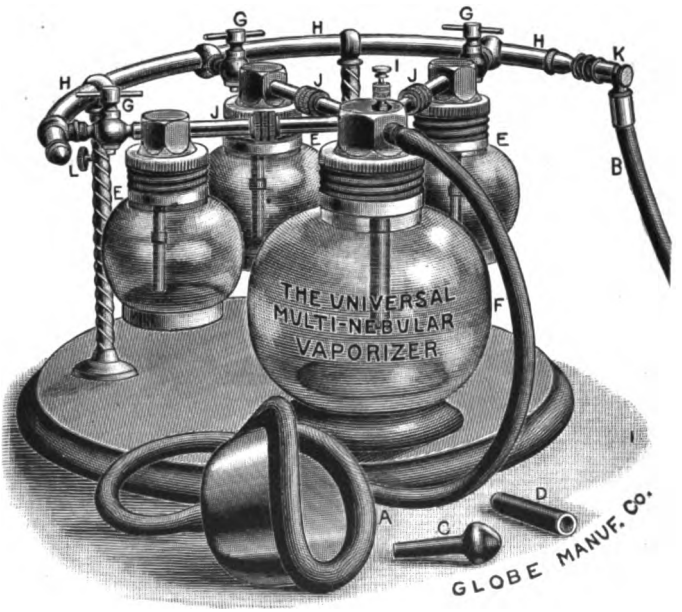
Fig. 2.

DETACHABLE HARD RUBBER NEBULIZING TUBE.

The Globe Nebulizer differs from other instruments of the same class mainly in the construction of the nebulizing tube as shown, which prevents obstruction even in the use of agents of a gummy or resinous nature.

It also has special features as to method of applying the vapor which may be inhaled through the mask or mouth piece, or forced into the middle ear and nasal sinuses through the hard rubber nasal tip.

I refer thus briefly to the globe nebulizer because the instrument under consideration is constructed on the same principle.



As will be readily seen it is just what its name indicates, a multi-nebular vaporizer. It comprises three or five nebulizing chambers, the vapor or nebula from which is discharged

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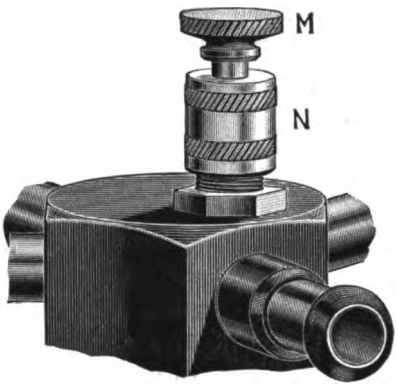
through the tubes J, into the large receiving globe F, from which it may flow out freely through the inhaling tube, or may be stored under pressure and released in greater or less volume at the will of the operator, this being controlled by the automatic valve mechanism as shown.

By this construction we have always at hand a variety of solutions for immediate use, either singly or combined, in varying proportions as the case may require.

In addition to this and even more important is the variety of methods by which the vapor is administered, this being provided for by the combination of the large receiving globe with the automatic valve which controls its outlet, a feature which has not to my knowledge been employed before.



The Above Cut Illustrates the Adjusting Mechanism of the Valve I.

I will describe briefly the various methods by which I am in the habit of employing this instrument:

METHOD NO. I.

Adjust the valve 1 by screwing down the adjusting collar N as far as it will go. This holds the valve open allowing the vapor to flow out freely. Apply the mask to the face and inhale as in ordinary breathing, and at the same time apply the air pressure. Cut off the air pressure and remove the mask from the face during exhalation. Repeat about fifteen times per minute and continue for ten to twenty minutes. This method makes a very thorough application to the nose, throat and larger bronchial tubes.

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METHOD NO. 2.

Arrange the instrument and begin the inhalations as in method No. 1. Gradually increase the depth of inhalations and diminish their frequency until at the end of five minutes they reach the full capacity of the lungs, and are repeated about ten times per minute. This should be continued for fifteen to twenty minutes without interruption. The lungs should be emptied as completely as possible at each exhalation.

By this method the application reaches the entire respiratory tract.

METHOD NO. 3.

Proceed in the same manner as in method No. 1, having first substituted the mouthpiece D for the mask. Inhale naturally about fifteen times per minute, continuing from five to fifteen minutes. Remove the mouthpiece from the mouth and cut off the air pressure during exhalation. By this method the application is more concentrated in the throat and bronchial tubes, while the nasal passages are not reached at all.

METHOD NO. 4.

Begin the inhalations as in method No. 3, gradually increasing their depth and diminishing their frequency until at the end of five minutes they are as deep as possible and repeated about ten times per minute. Continue for fifteen minutes or longer without interruption. With each exhalation the lungs should be emptied as thoroughly as possible.

By this means the vapor reaches the smaller bronchial tubes and air cells.

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METHOD NO. 5.

Place the mouthpiece in the mouth, applying the air pressure, and at the same time exhale gently through the nose. This will cause a cloud of vapor to issue through the nostrils and makes a thorough application to the pharnyx and nasal cavities.

Continue with intervals for breathing for about ten minutes.

METHOD NO. 6.

Insert the nasal tip C in the inhaling tube and place it in one nostril, closing the opposite nostril with the thumb.

Apply the air pressure and the vapor will be forced through the nasal passage down into the throat and will issue from the mouth as shown. This should be continued, with intervals for breathing, for ten minutes.

The nasal tip should be changed occasionally from one nostril to the other.

The application is to the nasal passages and throat.

METHOD NO. 7.

Place the nasal tip in one nostril and apply the air pressure, allowing the vapor to flow freely from the opposite nostril. Continue with intervals for breathing ten to fifteen minutes.

In this method the application is confined to the nasal passages and is useful where there is any obstruction, as the vapor may be forced through where an ordinary spray would be useless.

METHOD NO. 8.

Adjust the valve I by raising the adjusting collar N until it almost comes in contact with the button M. This will allow the valve to close automatically, but it may be opened slightly by pressure on the button M. Apply the air pressure for about ten or twenty seconds then shut it

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off. The valve I being closed the vapor is retained in the globe F under pressure. In the meantime the nasal tip should be pressed in one nostril and the other closed by pressure with the thumb.

The patient is now instructed to swallow or pronounce the word "hook." This closes the throat, and at the same time the valve I should be opened momentarily by pressure upon the button M. This permits the escape of the compressed vapor, which by expansion is forced into the middle ear, nasal sinuses, etc. This may be repeated several times before it is again necessary to turn on the air pressure.

If the vapor does not flow out with sufficient force, lower the adjusting collar N. If there is too much force, raise the adjusting collar.

If the eustachian tubes are so obstructed that the ears cannot be inflated as above, the eustachian catheter may be used, connecting it with the inhaling tube.

This method affords the safest and most efficient means for inflating and medicating the middle ear, and is also of much value as a treatment for nasal catarrh which is almost invariably present in these cases, the mechanical pressure serving to diminish passive congestion, thus improving the circulation and nutrition in addition to the benefit derived from medication.

METHOD NO. 9.

Proceed as in method No. 8 except in the manner of opening the valve I. Having obtained the proper adjustment for the case under treatment, and everything else being in readiness the button M should receive several rapid blows with the finger as in striking the keys of a piano. This produces a series of rapid inflations of the tympanic cavities, vibratory in character, and practically acts as a medicated massage not only to the middle ear but also to the nasal cavities and connecting sinuses.

This opens a new field in the treatment of these numerous and obstinate cases in which there are adhesions, contractions and anchyloses within the tympanic cavities. It produces

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vibration from within instead of without and tends to expansion rather than compression of the ear drums.

METHOD NO. 10.

Attach the mouth-piece D to the inhaling tube and raise the adjusting collar N just high enough to permit the valve to close. This will leave about one-eighth of an inch space between the collar N and the button M, and permit the valve to open to its fullest extent when the button M is pressed down into the collar.

Now turn on the air pressure, allowing it to remain on during the entire treatment, which should continue from five to twenty minutes, depending on the case.

At the end of ten or fifteen seconds the vapor in the globe will have accumulated under a pressure of from ten to fifteen pounds to the square inch.

The patient should now place the mouth piece in the mouth, retaining it with the lips only, closing them quite firmly, and close the nostrils with the thumb and finger.

Press the button M instructing the patient to inhale slowly to the full capacity of the lungs. The mouth piece should still be retained by the lips until the expanding vapor forcibly expels it.

The button M should then be released and the patient should exhale slowly. By the time the exhalation is completed sufficient vapor will have accumulated for another inhalation, which should proceed as before, and this round be continued without interruption through the entire treatment. The valve should not be opened too suddenly.

At first the patient will become tired, and the treatment should be continued but a few minutes. The respiratory muscles will soon become stronger and the treatment may be continued accordingly.

This method may be employed with absolute safety in any case, there being no possibility of producing harmful pressure in the lungs, the lips acting as a perfect safety valve.

If there is any tendency to pulmonary hemorrhage the inhalations should not be so deep, but otherwise the treatment should be directed as above.

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The pressure which is developed in the lungs and bronchial tubes will diminish the congestion and the tendency to hemorrhage.

This method is of the greatest value in treating all diseases of the bronchial tubes and lungs, because in addition to the thorough application of suitable medicinal agents there is a decided improvement in the circulation, nutrition and muscular tone as a result of the mechanical manipulation, the value of which cannot be too highly estimated.

It will be readily seen that being able to vaporize all classes of medicinal agents and apply them by the various methods just described, the apparatus has a wide range of application and in fact is adapted to the treatment of almost all diseases of the respiratory organs and middle ear in which local applications and manipulations are indicated.

I wish to call especial attention to methods No. 8 and 9. The alternate application and release of the compressed vapor to the tissues of the nasal cavities, sinuses and middle ears exerts a decidedly beneficial effect aside from that which results from the application of the medicinal agents. The blood is pressed out of the engorged tissues, thus improving the circulation and nutrition, obstructed tubes and ducts are opened, and in the ear adhesions, contractions and anchyloses are gradually overcome by the massage-like effect which is secured.

In the treatment of cases of chronic catarrh of the middle ear the advantages of vibration transmitted through the eustachian tubes over that applied through the bone or external auditory canal is too apparent to require special comment.

Method No. 10 does not properly come under the scope of this paper, as it is employed wholly in the treatment of diseases of the bronchial tubes and lungs, for which purpose it is of equal value with methods No. 8 and 9 in the treatment of the upper air passages.

Briefly, the advantages claimed for this instrument are—the convenience which results from its multiple form; the

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ability to transform all medicinal agents from a liquid to a semi-gaseous state in which condition they are best suited for application to the respiratory mucous membrane; the storage of vapor under pressure; and the various methods of applying the same in combination with certain mechanical manipulations.

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THE FOUR TONSILS.

CHARLES H. BAKER, M. D.
Bay City.

Between the pillars of the fances, at the vault of the pharynx, and at the root of the tongue lie four glandular masses of similar origin and structure, namely, lymphatic, which are prone to enlarging beyond physiological limits, and which are the sources of many and various disorders and discomforts.

The type and usually the larger of these masses lies between the pillars of the fances and gives the generic name (the tonsils) to the group. In the physiological state the tonsil consists of an almond-shaped mass of lymphatic tissue almost level with the surface and penetrated by many culdesacs or crypts containing a secretion chiefly consisting of fat cells, epithelium, mucus and cholesterin.

The function of these glands has been variously assigned, but now seems to be accepted as that of laboratories for the production of white blood cells, and as scavengers set on guard over the portals of the œsophagus. However obscure the physiological function, there is no mistaking the pathological conditions which accompany the enlargement of these glands, either acute or chronic, a thick changed voice, such as would be produced by talking with a chunk of beef tied to the tongue; fatigue in the use of the voice; pain varying from mere fatigue and aching up to severe dysphagia; interference with respiration, particularly in sleep; anorexia and catarrh of the stomach from swallowed secretions; pallor from interference with respiration; catarrhal secretions of throat and nose; loss of hearing; fetid breath; extrusion of foul masses

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of secretion from the crypts; recurrent tonsillitis and quinsy and a predisposition to sore throat and diphtheria, are all consequent on the enlargement of these glands to any extent beyond the normal standard. Of course the enlarging is consequent in some cases upon the pre-existence of some of the above enumerated conditions, but there have been named none which are not usually directly tracable to the acute or chronic increase in the size of these glands.

What then is to be done with enlarged tonsils? The answer is, remove them. If the enlargement is acute, of course the best plan is to await the subsidence of the inflammatory symptoms and see if the glands do not subside to their physiological size, assisting the process of resolution by appropriate treatment. The man who confidently expects a majority of large tonsils to resume proper size is doomed to disappointment, for like Bauquo's ghost, "they will not down," and the question of treatment arises. There is but *one* satisfactory method of removal, namely, ablation. The treatment of tonsillar growths has too long labored under the opprobrium caused by efforts to absorb them by medication, either local or internal, by electrolysis, electro or igni-puncture, caustics, etc.; for opposite to one success may be set ten failures who go about saying, "I had my tonsils treated by various physicians and they always grew again." Cut them out, assuring your patient that by the assistance of cocaine the removal will be painless. By the use of antiseptic, soothing gargles or sprays the healing will be nearly so, and he will be forever free from the annoying, frequent sore throats, recurrent attacks of tonsillitis and quinsy; his deafness, if a child, will subside, and his health be in a wonderful degree restored.

What instrument you use is immaterial so far as results are concerned, whether the snare hot or cold, the forceps and bistoury, or scissor, or the tonsillotome, my preference usually being the latter, Matthieu's pattern, but being sure to get it all. The fear of hemorrhage has deterred too many operators and patients, and I cannot see how in any except the unfortunate subject of the hemorrhagic diathesis, who would

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bleed to death from a pin scratch, there need be any serious bleeding if the operation is properly done. The base of the tonsil lies in the anterior part of a triangular space filled with connective tissue, and the vessels liable to injury are at the posterior part of this space from three-fourths to one inch away, and any surgeon who cannot cut safely with such a leeway should drop surgery and saw wood. In dense fibrous tissues, found occasionally in the tonsils of adults, you may meet vessels which object to contract, but they can be induced to go into their hole and pull the hole in after them by the use of the cautery applied to the bleeding spot. With those patients who will not consent to removal I am not dealing, for such cases are a law unto themselves and no treatment is satisfactory. The pharyngeal tonsil or adenoids have been discussed so often in these meetings I do not care to describe their symptoms, but mention them only to express wonder at the amount of ignorance which still prevails in the ranks of our profession regarding the symptoms produced by adenoids, and the instant relief to grave deafness, malnutrition and arrested development which follows their removal.

The fourth tonsil lying at the root of the tongue, in front of the epiglottis, has been so little noticed that it has not been discussed in the extended works of such writers as Cohen, Sajous, Bosworth and Burnett. Some attention has been paid to it in the current literature and it is mentioned as a part of the "lymphoid ring," but less study has been bestowed on it than its importance warrants.

Cohen has indeed given a couple of pages to what he designates spasmodic cough, which is almost a clinical picture of this disorder.

The normal tongue is comparatively smooth on the surface next the epiglottis, the healthy lymph glands being flat and little raised above the surface, and when the tongue is pulled well forwards for the use of the laryngeal mirror considerable space usually lies between it and the epiglottis. Frequently, however, these glands are enlarged and protrude in irregular masses backward like red warts lying against the dorsum or even overhanging the sensitive edge of the epiglottis. In con-

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sequence of the irritation thus produced the patient will suffer from a sense of fatigue in the throat. There is often a pricking or tickling sensation; a dry, barking and unsatisfying cough; a disposition to rasp the throat to raise some foreign body which does not come. Singers having these growths have difficulty in reaching and sustaining high tones and the voice easily fatigues or grows husky after singing.

It is easy to see how the presence of a growth overhanging the epiglottis, and irritating by pressure, should cause a congestion of the mucous membrane covering it, and even by continuity producing congestion of the arytenoids and vocal bands, and this is what often occurs. Even when these growths do not overhang they often lie against the epiglottis, preventing its full extension, thus causing fatigue of both speaking and singing voice. These patients often complain of most trouble when lying down, especially of the distressing cough. This is due to the weight of the tongue pressing these vegetations harder upon the epiglottis and interfering with respiration. The same rules for treatment apply here as in the case of the pharyngeal and faucial tonsils. Complete ablation of the protruding masses will produce prompt relief of symptoms. Medication appears as useless in enlargement of these as of the other tonsils. In practice the removal has been found easy with the punch post nasal forceps turned down, with the curved snare and small wire loop, very stiff, and less satisfactory the galvano-cautery. Caustics are not indicated on account of their unreliability and the danger of their coming in contact with the epiglottis after withdrawal of the applicator.

Treatment of these cases on the lines indicated has given the writer great satisfaction and has resulted in relieving of their difficulty a large and growing number of patients who have passed from physician to physician without benefit. The cough of which these patients complain is usually mistaken for one of bronchial origin and sedatives and expectorants are administered literally *ad nauseam.*

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BRAIN SURGERY; REPORT OF A CASE.

CHARLES W. HITCHCOCK, M. D.
Detroit.

Of all the triumphs of surgery during the last decade, none has been more conspicuous for real advance and as gaining new vantage ground of incalculable benefit to mankind than has brain surgery. A review of the literature of the subject shows it to be rich in valuable additions in which American surgeons have played a prominent part.

It is interesting to note that in 1889 Senn stated that "Mr. Jacobson had only been able to find ten successful cases of trephining of the skull for hemorrhage during the last one hundred years." Such a statement made less that ten years ago brings rather forcibly to our minds the great strides of this decade; for each year since 1888 has given us numerous reports not only of successful trephinings for hemorrhage, but for tumors, abscesses, cysts, etc. Cure for idiocy, imbecility and even general paresis has been sought in trephining. The brilliant results in some lines and in properly selected cases have led to much work born of an ill-considered enthusiasm and not entirely creditable to the annals of surgery. It is not yet, I believe, anywhere authentically recorded that a craniectomy has added one whit to the intellectual calibre of an idiot nor made of an embecile an ornament to society. Yet, much unwarranted work of this kind goes merrily on.

Better excuse there has been for trephining for epilepsy, and in some traumatic cases excellent results have fully justified the operation; but it is most astonishing to note the utter lack of discrimination with which some surgeons have regarded this work. A few months since I was shocked to hear

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a somewhat prominent surgeon state his belief that probably ninety per ceut. of all cases of epilepsy were operable and should have the benefit of trephining. I do not believe that such an estimate could be sustained by facts or reliable figures. It is as yet a matter of the greatest uncertainty if even cases of Jacksonian epilepsy are fit subjects for operation, that is with any, fair hope of a successful result, and in many cases of traumatic origin grave doubts attend the even probable success of operative interference. Early operation in traumatic cases, especially when there seems to be some indication or probability that depressed or displaced bone is a present and constant source of irritation, is of course justifiable and desirable, and it is certainly in such circumstances that trephining for epilepsy must yield its best results.

Not all traumatic cases, even, hold out for us any certain or likely promise of success, for in some cases damage already done to brain cells, from concussion perhaps, has worked a mischief beyond the surgeon's reach. In traumatic cases, too, of long standing, even though pressure was the initial irritation, it is more than doubtful if even the most thorough removal of that pressure will restore a normal condition. Changes have more than likely gone on in brain tissue with which the surgeon has no business and which his interference cannot mend.

The deduction seems a rational and easy one, therefore, that in cases of epilepsy the surgeon is likely to be of real aid only in those cases where he can hope to remove some irritating pressure from displaced or depressed bone or other foreign body, and so restore a normal condition or place injured tissues on a surgical basis for healthy repair.

It is to be regretted that so much indiscriminate trephining in these cases has been indulged in with the apparent idea that from the removal of a disc of bone some magical effect upon the action of brain cells was to be looked for, a hope at once irrational and chimerical. Changes already accomplished in nervous tissues are not to be eliminated by the simple removal of a portion of the bony envelope surrounding the same.

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Starr ably discusses trephining for epilepsy, cites cases of his own and others, and aptly sums up the situation thus:

"The question then arises, shall we continue to trephine any cases of traumatic or localized epilepsy? Judging by general results, which are unfavorable, we should be inclined to stop. But when it is taken into consideration that in no case is it possible without an operation to determine the exact pathological conditions present, and that a certain proportion of the pathological conditions are removable, it is evident that an operation if not attended with danger may be reasonably undertaken. Some patients have undoubtedly been cured.

The statement should be made to the patient: "You have a brain disease; that disease is causing fits; that disease may be cured by operation; we cannot tell whether it is curable until we operate; we cannot promise that the operation will in any way benefit; a majority of the chances are against cure, but it is the only method of treatment which affords any hope whatever and it is a method which is fairly safe."

I pursued this plan essentially in the case of E. C., male, 27, single, whose family history is negative. He states that when he was seven years old (he recalls that " 'twas an awful hot day") a boy pushed him off from the fence,—no wound or abrasion (he says) of the head, but he had paralysis of the right side for some time, though this gradually recovered. He then had several convulsions at irregular intervals, varying from a few years to a few weeks. Of late has been having attacks about once a week. They occur invariably at night or when he is lying down, and there is always a preceding aura in the right hand and arm, which feel numb and very cold. This is always so marked as to awaken him, if asleep. His head is apparently symmetrical and bears no scars or marks of injury. It is fully explained to him that there is just a possibility—hardly one chance in ten—that operation may benefit him somewhat. After due consideration he decided that he wanted what chance there was, and I trephined over the center of the right arm on Tuesday (of this week) June 2nd. It is, of course, too early to speak of results.

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Personally I am not at all enthusiastic in the hope of benefitting such a case; but it is the patient's choice and I shall be glad of any help which operation may bring him.

While the diagnosis, localization and removal of tumors, cysts and abscesses have been most brilliant and wonderful, it seems to me that in the saving of human life by trephining for hemorrhage in traumatic cases brain surgery really has its greatest and crowning glory. Cephalic traumatisms involving serious intra-cranial lesions are of such frequency as to present a field for good work, and "laissez-faire" treatment and death has so long been the rule in these cases that the day of better, more intelligent treatment and the frequency of saving life are indeed a just cause for gratitude and pride to the profession. A recent writer in the Journal of the American Medical Association cites the melancholly fact that "Until recently, it has been considered justifiable for the surgeon, after having made a gross diagnosis of fracture of the base, 'compression' or 'concussion,' to stand by and see his patient die or become the subject of epilepsy, insanity or permanent paralysis."

Surgeons have too long regarded the cranium as a sanctum sanctorum and have been too content to shrink from and shirk the problem of exact diagnosis of recent intra-cranial lesions.

All honor to the pioneers in this work who have "blazed" the way through the forest for us, and whose studied and careful surgical work makes us more alive to the hopeful possibilities which attend upon these cases.

We have come to know that a (formerly) fatal pressure may by prompt measures be relieved, a paralysis averted or speedily terminated, and a life saved; and, doubtless, the time is at hand when no competent man will stand by and see his patient die from even a basal hemorrhage without at least adequate operative endeavor to prevent a fatal issue.

Exact diagnosis upon the spur of the moment is often impossible, but the indications of what is immediately necessary in order to avert an impending death are ordinarily sufficiently plain. Meantime, present symptoms can be accurately if

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hurriedly noted by the careful observer and systematized to give ground for the later diagnosis. Questions of concussion and compression will at once arise. Concussion probably means for the surgeon nothing short of laceration of brain substance with necessary involvement of at least some small vessels. If compression is indicated is it from extra or intradural hemorrhage? If the former, it is more than likely that we have a rupture of the middle meningeal artery and the accumulating clot should be speedily removed. A period of consciousness between the two periods of unconsciousness, *i. e.* between the first unconsciousness from stunning and the later comatose condition, is said to afford good ground for suspicion of middle meningeal hemorrhage, although no positive and conclusive diagnosis can be established between a hemorrhage from a cerebral and that from a meningeal artery.

The condition of the pupils, whether dilated or contracted, equal or unequal, responsive or sluggish, is to be carefully noted; as also the patient's mental condition, nature and frequency of respiration, apparent or actual paralysis, either facial or of an extremity, the condition of the reflexes, etc.

Keen considers the intervening period of consciousness as of great value in determining the diagnosis, especially between concussion and hemorrhage, and calls attention to the fact that in concussion the unconsciousness is not so deep but that the patient may be temporarily aroused, unlike the coma ensuing upon compression.

Some of these problems confronted me in the case which I have the pleasure of reporting to you and in which I have no doubt whatever I was enabled to save my patient's life by prompt trephining. The case presents other points of interest as well.

On the morning of Feb. 20, 1896, Jno. S., age 27, strong and healthy, was engaged in hauling up a bundle of several pieces of $1\frac{5}{8}$ inch gas pipe varying from 3 to 6 feet in length. When the bundle was four or five stories above him one pipe in some way slipped out, and, falling, struck him on the head, inflicting a large, ragged, lacerated wound in the left

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posterior parietal region (just back of the upper end of the fissure of Rolando).

He was at once unconscious and was quickly sent to a hospital, where I saw him just after his arrival, probably not over twenty-five minutes after the receipt of his injury. There was complete coma, stertorous breathing of the Cheyne-Stokes type, with so long an interval between the rhythms that several times those who stood by thought the patient dead. The right pupil was widely dilated, the left contracted.

Hastily exploring with my finger the large scalp wound, I could find no depression, no line or fissure of fracture as far as I could reach. The pulse was full and slow, 40 per minute, and growing poorer in quality. Here clearly was a man likely to die at once from intra-cranial compression unless speedy relief was afforded, but there was no depression, no evidence of fracture, no apparent paralysis present to guide me as a localizing aid to site for operation. I hastily reasoned that the site of a severe blow was evident and that tissues underneath had likely sustained such injury that some hemorrhage and consequent clot might be there and so easily accessible for relief.

At the same time the dilated pupil on the right side and the greatly modified breathing strongly intimated that the hemorrhage was far more likely basal and on the right side; but the localizing symptoms were not sufficiently exact, and I therefore adhered to my first and quickly formed purpose to trephine over the site of injury. Five minutes after I first saw the man I was vigorously trephining him. The disc of bone removed was but a small one and I could not say that the hemorrhage from its site was profuse, but it at least served the purpose of allowing better accommodation for the increased intra-cranial contents, thus relieving pressure. It is interesting to recall distinctly that just after the operation while I was carefully watching the pulse he distinctly and forcibly moved both arms and legs. Respiration very speedily improved in character, the pulse soon rose to 56 and later to 60, where it remained for some time, going later to 72.

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Though for two days he was at no time entirely conscious, and was for a week quite lethargic, improvement was constant. Return of consciousness developed the fact, which we had already been led to suspect, that there was total inability to move the right arm or leg, the paralysis involving the right side of the face but very little.

February 25th Dr. Nancrede saw him with me and advised trephining over the center for the right arm if there was no improvement at the end of a week. Sensation was only slightly impaired over the right side (the patient thought not at all) and he localized excellently. A slight plantar reflex could be elicited, but none in the hand. The patellar reflex was exaggerated.

He complained of some headache each day, especially on the left side, but was otherwise quite comfortable. March 3rd I trephined over the center for the right arm, removing a button of bone an inch and a half in diameter. The dura bulged quickly and forcibly into the wound. Such bulging Horsley regards as an indication of the existence of pathological intra-cranial tension. No evidence of any extra-dural hemorrhage being found, the dura was carefully incised and laid back. The brain was apparently normal in color and appearance, save at one spot where the tissues were apparently slightly discolored as if a small hemorrhage might have occurred and have been absorbed. The evidence was not, however, sufficient to be deeply significant. That evening he thought his headache was less, but no motion was possible on right side.

His condition continued comfortable. Three days after the operation, his wife noticed that when he yawned hard there was a contraction of the right hand, an observation, which I later confirmed, which I have since known of in a similar case, and which I am at a loss to satisfactorily explain.

March 8th. It was recorded that his temperature was 99° F., pulse 74, pupils equal, tongue clean, bowels sluggish.

March 14th. He feels better, seems clearer, and is conscious of improved mental condition. He has now controlled

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his urinary sphincter for a week, the catheter having been necessary for fifteen days after the injury. It is noted that a more decided reflex of the right foot can now be elicited. Looking at me, as I stand far over to the right, he experiences a diplopia; but I later try it again in same position and he sees normally.

March 16th. He experiences a feeling of dizziness on long continued effort to look to the right. He pulls his right leg from my knee on to the bed today, showing a return (first) of adduction. He does not yet move the hand at all.

March 23rd. He astonishes me today by giving quite a vigorous kick with the right leg and, putting the right hand and arm above his head on the bed, he can then get it down by his side, partly voluntarily and partly by aid of gravity, but cannot move his fingers.

March 27th. He has gradually improved and now walks with support to and from bath-room. No use of fingers yet.

April 1st. He can walk without support, but throws his foot awkwardly and is very liable to stub his toe; his gait is markedly hemiplegic; he can now flex but not extend his fingers.

April 5th. He walked out today using the crutch but little and shows marked improvement.

April 15th. He was examined today by Dr. Don M. Campbell who finds ocular muscular tension about normal, essentially normal field of vision for each eye and normal fundus in each.

April 21st. Examined today by Dr. Neff of Pontiac and exhibits a markedly hemiplegic gait, though it has greatly improved. The patellar and arm reflexes, especially on the right side, are markedly exaggerated. There is spasm, though not constant, of the muscles of the arm and leg. The pupils are slightly unequal, the right larger. He is constantly improving in motor control, and is having a mild Faradic current to all the muscles of the right side for five minutes daily.

April 23rd. As some source of irritation has been keeping up a purulent discharge from the operation wound, I today

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cut down and thoroughly scraped the tissues, finding no roughened bone and the disc which had been replaced apparently firmly united with the surrounding bone.

May 12th. I was forced to take like procedure, and this time I found the disc loose and becoming carious from the edges, and removed it ten weeks after first replacing it. Were I again to replace such a disc of bone I should adopt the plan which McEwen recommends and comminute it before replacing. Healing and entire closure have been prompt since its removal. Improvement in motor control has been constant and quite satisfactory. He can pick up a pin with the right hand and can write after a fashion, though from the signatures which I pass around you will note that his chirography is, as might be expected, quite ataxic. Fine motions are, of course, as yet quite difficult for him, but the hemiplegic character of his gait is fast diminishing, though he will doubtless long, if not always, carry some traces of it.

I have been unable to measure accurately with a manometer the relative power of the two hands, but I should judge that the grip of his right hand is now at least half that of the left and he can strike quite a strong blow with the right hand.

I had hoped to show him to you today, but he has just returned to his former home to engage in light business until he regains strength for more active work.

Under the old plan of treatment this man would have speedily died. Though all traces of his injury are not removed, his life is saved, his gratitude earned and he is in condition to probably earn for himself a fair livelihood and be of some use in the world.

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DISCUSSION OF DR. HITCHCOCK'S PAPER.

DR. NEFF, Pontiac: As Dr. Hitchcock has stated I saw the case with him about five weeks ago. The symptoms were just as he enumerated. There was slight dilatation of the right pupil, a condition of paresis of the right arm and leg, a slight spasmodic action in the right leg, the finer movements of the arm were very much interfered with and there was some ataxia. There was slight tremor also. I agreed with Dr. Hitchcock that the symptoms were probably due to a pressure at the base, resulting from a rupture probably of one of the meningeal arteries, and the symptoms were such at that time as to lead me to think thus, and Dr. Hitchcock agreed with me in that the symptoms were entirely compressive. I believe that the improvement which he has since made bears out our diagnosis. Dr. Hitchcock's paper is very important and should give rise to considerable discussion, especially as regards the relief which is experienced after trephining from compressive symptoms of the brain. His case is certainly remarkable, and I have no doubt the patient's life was saved by the early trephining. I have no more to do as regards this case. I believe with Dr. Hitchcock that there will be always a slight amount of hemiplegia; I think that the improvement will continue and the resulting hemiplegia will be very slight.

DR. MACLEAN: I am very sorry indeed that I happened to be detained so that I missed hearing Dr. Hitchcock's paper. I had anticipated hearing it because I had heard something about his case and I had particular reasons for wishing to hear and discuss his paper. I have had occasion recently to consider this subject of brain surgery to a slight extent, and I think possibly it may be in my power to add a little to the interest of the discussion, if in connection with Dr. Hitchcock's paper I mention briefly a recent experience

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of my own in that direction which struck me as being instructive and important.

A patient was sent to me from Traverse City, a very bright, fine looking boy sixteen years of age, who when he was three years of age had the misfortune to be thrown out of a wagon and the seat of the wagon toppling over struck him with great force on the forehead a little above the left eye, high enough up so that his abundant hair at the present time at any rate covers the scar. It was a very bad scar. That occurred twelve years ago when he was a little child. Shortly after that injury nervous symptoms began to develope, and when he came to me his statement in brief was this: That during all these years he had never known what it was to be free from pain in the head. While he was a bright, energetic boy, fond of out-door sports, fishing, shooting, camping out and so forth, he still carried this burden around with him, this continual pain. It also affected his mental condition so that he was very irascible. He was liable to fits of great passion. He had a strong tendency towards suicide, and latterly epilepsy. When he came to me, considering the length of time the case had lasted, and the fact that there was no evidence of depression of the skull, I felt discouraged and unwilling to offer any hope by treatment; but I kept him under observation for a week. If anything could be done I wanted to do it. If anything could not be done I wanted to give him such advice as would prevent him from falling into other and less honest hands in the future, and I kept him under observation for a week. At the end of that time I made up my mind that I would make an attempt after explaining to his mother, a very bright, well educated, intelligent lady, all the risks and doubts about it. She begged of me to make the operation and assured me that she would rather take her son home in his coffin than in the condition she had brought him to me; that was the way she felt about it. I should say also that the cicatrix or scar and the tissues around were exceedingly sensitive, the slightest pressure there caused pain, an excessive pain and tendency to spasm, and the boy at all times had an expression

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of pain on the features of his young and handsome face. I dissected out the scar with a free incision, cut freely into the sound tissues around, and on examining the bone I found it rough and unnatural, and on that account I thought that possibly there might be some internal pressure there that would be relieved by trephining, and I did trephine. I found the skull to be very very thin, not much thicker than tissue paper, certainly not thicker than an ordinary sheet of writing paper. There was nothing particular in the operation beyond that. I did not replace the button. I closed up the incision but not very firmly, drew it gently together and applied aseptic dressings and the whole operation was done with the greatest precautions in that direction. Now then the question is as to the result of that operation, and it is easily stated. To my own entire amazement and great satisfaction the operation acted like the wand of a magician. From the moment of the operation to the present time the boy has had no pain in his head. His temper has calmed down to that of a rational, normal boy. His physical health is perfectly restored. He has gone home, and a few days ago I received from the mother a letter assuring me that the result of the operation was all that her mother's heart could desire, and that the boy was away on a camping and fishing expedition. Now only one word more about it. So far as my own belief goes, I would have done just as well if I had stopped short of trephining. I do not think that operations for trephining should be made simply on general principles because a patient has epilepsy or because a patient has this symptom or that symptom, unless you can see distinct pressure, a depressed fracture, or unless you are reasonably sure that there is a growth of bone inside; but simply to trephine a skull in the hope that in that way you *may* modify, relieve or cure profound nervous symptoms I do not believe to be good surgery, and satisfactory as this case is, one of the finest of my whole experience, I still think that I did too much, and if I had it to do over again I would stop short and simply dissect out the cicatrix which I believe was the center of all this complicated series of reflex symptoms.

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DR. ROBBINS, Detroit: This case of Dr. Hitchcock's has been to me one of very great interest, and particularly so as, following the case along somewhat in detail from his description of it as he has given it to me from time to time, I feel assured that the doctor is honest in his belief that the cure of his patient came as the result of his trephining; yet the case itself interests me and I find myself in an extremely skeptical state of mind. I can hardly realize how it is possible for the slight hemorrhage from the removal of a button of bone from the skull to sufficiently relieve the symptoms of pressure from a hemorrhage at the base of the brain and bring about such beautiful results. It is very satisfactory to note the improvement of his case, and yet, personally, and I hardly dare to whisper it, I feel that possibly the application of leeches externally, or the drawing of blood from the system generally, would have brought about the same temporary relief until nature herself could succeed in producing absorption of the serum sufficient to remove that congestion. Many of these cases of trephining are extremely interesting, and the decision as to what has been done or what has not been done by the operation itself requires a great amount of study. I would not have what I have said taken in any way as a criticism of the doctor's methods in his case, which has been interesting, but just merely suggest, would not these same results have taken place and the immediate cause of death been equally well removed by the abstraction of blood from the general circulation.

DR. FULLER, Grand Rapids: I was interested in the paper as well as in the remarks of Dr. Maclean. It occasionally happens after injuries to the scalp that in the process of healing nerves will get tangled in the scar. The symptoms produced by this accident often resemble and are mistaken for brain affections which are relieved by the removal of the scar. I have seen epilepsy produced by a neuroma in the scar of a stump after amputation.

I agree with the last speaker in his belief that the second operation of trephining did not contribute to the recovery of the patient. I am of the opinion that a clot or rupture of

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the cerebral substance or both occurred beneath the surface of the brain, and that the reason why deep yawning partially restored motion was that the act of yawning reduces cerebral blood pressure with consequent relief of pressure upon the surface of the brain.

Referring to the first operation, it was eminently justifiable and reflects credit upon the doctor for his promptness of action which doubtless saved the patient's life; and in answer to the remarks of the last speaker I will say that even the removal of a button of bone under these circumstances has often given great relief in cases in which the symptoms were of the gravest character. The removal of ever so little pressure permits the medulla oblongata to resume its functions, and respiration and the heart's action is restored. I could quote several cases in my own experience to prove the fact.

I wish to take exceptions to one remark in Dr. Hitchcock's paper for which I hope to be excused because it is in personal defense. He said that some brilliant results have been obtained in operations in cases of idiocy, etc., which were born of an ill-considered enthusiasm not creditable to suggery. The credit belongs to me, if any is to be attached to it, of being the first that attempted the cure of idiocy by surgical means. I operated upon two cases sixteen years before Dr. Lannelongue of Paris published his operation. I published these cases at that time with a full account of the causes of idiocy and the reasons for operating, pointing out at the same time the kind of cases which indicated an operation for relief. I wish to say to the doctor that we used to observe and reason in those days as well as now, and if he will read for himself he will discover that beyond a decade or a century and further, physicians were among the most intelligent of men.

A MEMBER: Were your idiots anything more than idiots after you had operated?

Dr. FULLER: I will say that they were improved by the operation. A blow on the head has been known to awaken dormant faculties, but there is no certainty that surgery is able to make a fool into a philosopher, or even something less,

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so that he can make a living. Mooted psycological questions and cerebral localization were at that time beginning to be discussed. The experiment was undertaken after full explanations to parents, both as to the rational and probable result, and if the idiots had died as the result of the operation they would have been counted with the vast army who have shed their blood for their country to educate the medical profession, and who have had no monument raised to their memory. The first operations called out great disapprobation and ridicule in both continents. I cannot however, submit to be stigmatized as among those whose acts are prompted by ignorant impulse.

DR. HITCHCOCK: I heartily agree with Dr. Maclean. Dr. Maclean had not heard my paper. I explicitly went to some extent into the conditions which warrant trephining and deprecate as much as any one hasty and unwarranted work.

With regard to Dr. Robbins' query, I recall having had a discussion with the doctor when I first told him of this case, a few days after it occurred, and the doctor remarked to me then that he was unable for his part to see how a pressure at the base could be relieved by trephining where I did, at the vault; but I think the doctor will find that that is not a very uncommon thing; that it has been relieved many times, and that basal pressure is capable of being relieved by trephining at the vault. The doctor would pursue the old plan of delay and sending for leeches, etc., but if he had seen the case he would have been satisfied that before he got back from the drug store with leeches the man would have been dead. I have no manner of doubt of that at all from the symptoms. The man was going on to his death. The interval between the rhythms of the Cheyne-Stokes respiration growing longer and longer, so that several times those that stood by said "Well, your man is dead," and then after seemingly a very long interval respiration would start up again, and then he seemed more dead than ever the next time; and the speedy manner too in which the respiration and all the symptoms improved right after that button was removed was to my mind incontrovertible and conclusive of the benefit of the

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trephining. I do not claim that the benefit came from anything which I specifically removed, but I do claim that the intracranial pressure was given relief. I went through very hastily, and I lacerated the brain substance some in going through, and the brain substance bulged up in the wound, so that must have relieved some pressure below. There was some hemorrhage at the time, although not a profuse one.

With regard to Dr. Fuller, I am sorry the doctor understood me as he did, as criticising the older operators and deprecating their work. I was not doing that at all. I had in mind modern operators in what I said; as for instance one surgeon who made the statement that ninety cases of epilepsy out of a hundred were operable. Such statements I think are without any foundation in fact, and such a remark is entirely unwarranted. Dr. Fuller will recall that I praised in my paper the early operators in this line who have given us the foundation for our work. These traumatic cases require, especially in such cases as the one which I have detailed, of course, the quickest possible action, and certainly such action is infinitely preferable to standing by and seeing your patient die as has been the usual rule heretofore.

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LIPOMA IN RELATION TO THE ETIOLOGY OF HERNIA.

F. MAAS, M. D.,
Detroit.

In operating for hernia we very often find a lipoma at the lowest point of the sac. To explain this a theory has been advanced which attributes the causation of rupture to the above mentioned growth. The power which dislocates the fatty tumor from its original seat in the abdominal wall is supposed to be two-fold.

First: Because of its weight the lipoma makes its way down into the scrotum or the canal of the large femoral vessels. The peritoneum attached to the lipoma follows and a pocket is formed with free communication into the general peritoneal cavity. The second power, which has the same effect upon the lipoma, is the intra-abdominal pressure.

The intestines in both instances play a different role. In the first case they simply take possession of the cavity. In the second case they act like a wedge driven by the force of the abdominal muscles and thus form the pocket. The intestine which follows the lipoma or which is driving it certainly must be of the same size as the tumor itself. A small opening usually will be filled by a part of omentum, a larger by a coil of the intestine or omentum, rarely by other contents of the abdominal cavity.

It readily can be seen that these powers, traction from outside and pressure from inside, are very different in their force. The intra-abdominal pressure can reach a very high degree when the diaphragm and abdominal muscles act to their utmost capability. The only force the lipoma is able to develop

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comes from its weight, and the weight of a fatty substance is very small.

The obstacles these growths on their way down have to overcome are their attachments to the surrounding tissue and those between the covers of the body, skin and fascia. About the same forces keep the lipomata in position when they are located at some other part of the body, as shoulders and back, but they never change their place. Even conceded that in the scrotum and around the femoral vessels the connective tissue is less firm than at other places in the human body, it remains difficult to understand how the light weight of the somtimes very small tumor can overcome it. In addition to this the lipomata not situated in the groin are usually very much larger and therefore heavier than those in connection with hernia, and their attachments are sometimes so loose that they are easily removed by blunt dissection. Furthermore, as far as I know the literature, no cases are reported in which lipomata in the groin change their places without forming peritoneal pockets. Are they always so firmly attached to the peritoneum that they cannot slip down without it?

If one has some difficulty in explaining in this manner the etiology of a hernia with the lipoma at the lowest point of the sac, he has still more when the lipoma is not so far down. This first specimen illustrates such a case. I have secured it in operating upon a lady fifty years of age, suffer- from an incarcerated crural hernia. The contents of the sac consisted of omentum, which I removed as far as it was discolored. A part of the sac and the lipoma were removed too, and the opening closed with buried silk sutures. The wound healed by first intention. Here the lipoma was firmly attached to one side of the ring so that apparently only a part of its weight could act in the before mentioned sense. How can this small weight, thus reduced in its power, form a peritoneal pocket by traction?

But leaving a little room for the traction theory even in such a case, there is no place for it when the hernia is not located in the groin. I have here another specimen which I removed in operating for hernia of the linea alba between

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the navel and xiphoid cartilage of the sternum. These herniæ, small in size, sometimes cause a great deal of discomfort to the bearer. My patient noticed about a year before operation a little tumor at the above mentioned place which varied in size from a filbert to a walnut according to its being more or less intra or extra-abdominal. It was not very tender, but made the patient nauseated and dizzy, first, only when he attended to his business as a blacksmith; later, even during the night so that it prevented him from sleeping. At the same time he was suffering from borborygmus, lack of appetite and loss in weight. The operation was advised and accepted. It was found that the hernia was in connection with the ligamentum teres hepatis, with no adhesions to the stomach or other organs. The rupture consisted of a double lobed lipoma. The larger part of it could be pressed into the abdominal cavity; the smaller remained outside on account of its attachments to the subcutaneous connective tissue. It can readily be seen that in such a case the larger part of the lipoma being intra, the smaller extra-abdominal, the weight of the latter cannot draw the former through the ring. It only can be effected through intra-abdominal pressure.

To summarize briefly the points bearing on the improbability of the traction theory, I may repeat: (1). The weight of fatty substance is very light. (2). Lipomata never change their places except when they are located in the abdominal walls. (3). Lipomata are not always found at the lowest point of the sac, but sometimes are tightly attached to the margin of the hernial ring. (4). Lipomata in the groin never become dislocated, at least not to any considerable distance, without the formation of a peritoneal pocket. (5). Intra-abdominal pressure explains the moving of lipomata in all cases very easily.

Certainly these remarks do not do away entirely with the etiologic value of lipomata in relation to hernia. It seems to me well founded as far as the formation of an opening in the abdominal wall is concerned. A small fatty tumor located in the parietes of the abdomen dilates the opening as soon as it begins to grow. The examples are numerous in which a

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growth of soft tissue presses aside or even destroys much harder tissue than its own. An aneurism of the aorta causes to disappear by constant pressure the ribs or sternum when it comes in contact with them.

When the external opening of the cavity or canal formed is only enlarged by the growing lipoma, is not smaller than the lipoma itself or the size to which it is compressible, the tumor will be forced out with more or less ease, suddenly or slowly, by the action of the abdominal muscles.

There is one observation that seems to speak against this explanation. In some cases ruptures have been cured in grown people by constant wearing of a truss. The autopsy showed that the accumulation of fatty tissue in the walls of the sac diminished the opening so that the abdominal contents could not pass into it. Such a sac as a whole can be looked upon in a mechanical sense as a lipoma. Why does it cure a hernia in one case and in another favor its development? The difference may be due sometimes to adhesions, sometimes to the size of the fatty accumulation. It cannot be pressed out when it is larger than the external opening in the abdominal wall.

Such a cure probably will last as long as the fatty accumulation remains of the same size. But when a person looses in weight from some cause, the fatty deposits of the body are greatly diminished. A lipoma which was large enough to resist the intra-abdominal pressure, becoming smaller, will yield to it.

Perhaps these circumstances have something to do with the etiology of the case the second specimen has been secured from. Besides very annoying nervous symptoms as mentioned above, the patient showed symptoms of gastric catarrh. The former he got rid of after the operation, the latter did not disappear entirely. Was not perhaps the gastric catarrh the beginning of the disease, reducing the weight of the patient and also the size of the lipoma? Such views are important concerning the prognosis which we have to give to our patient before operation. It is not sufficient to state that the lipoma is the cause of the hernia; one must distinguish

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between the symptoms caused by the combined lipoma and hernia and those of the disease which might have caused the protrusion of the lipoma and brought on the hernia.

It has been said that the appearance of a hernia between the navel and the scrobiculus cordis is often associated with carcinoma ventriculi. The relation between them may be understood as follows: The malnutrition caused by the malignant disease, favors the dislocation of the lipoma by lessening it in size. Apparently any other disease resulting in loss of weight would have the same effect.

Before I pass around my specimens I may call your attention to some other features they show, and throw perhaps a little more light upon the role lipomata play in the etiology of hernia. You will see that the lipomata are not solid tumors; they contain cavities, one such with smooth surfaces, the other with pearshaped lipomata growing from the walls. A communication between these and the general peritoneal cavity or the sac could not be found, but it does not exclude the possibility that they exist in other cases. Perhaps in the case adherent to the ring the sac originally was such a cavity opening into the general cavity, later on enlarged by the omentum.

The same explanation can be applied to this third specimen. It was removed from a lady 72 years of age suffering from a strangulated crural hernia. The tissue of the sac looks very loose like, having been filled before with fat, and formed such a lipoma with a communicating cavity. With advancing age of the bearer, who according to anamnesis lost considerably in flesh, the fatty substance disappeared and the pocket compressed by it before became filled with an intestinal loop.

When we try to understand the etiology of a disease and gain some knowledge of it, naturally the question arises how can this influence the treatment. According to this it would be advisable in radical operations for hernia to remove the sac or at least the fatty tissue in connection with it and close the ring by Bassini's or kindred methods. Certainly there is no rule without an exception. In cases where it is impossible to

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close the ring entirely one may be satisfied to diminish it and bring a plug formed out of the sac with or without the lipoma above it. It is better to close the opening in this manner with a chance that the plug, acting like a wedge, enlarges again the small opening left than not to close it at all.

Such are the conclusions in regard to treatment to which theoretical reasoning upon the relations between lipoma and hernia leads. As in all other subjects they have to be controlled by experience, that is, statistic. It is beyond the limits of this paper to discuss which of the numerous operations for radical cure of hernia gives the best results.

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SOME CONSIDERATIONS IN THE OPERATIVE TREATMENT OF INGUINAL HERNIA.

ERNEST T. TAPPEY, M. D.
Detroit.

The various methods of treating inguinal hernia by operation have all for their object the effectual disposition of the sac and the closure, as far as possible, of the abdominal rings and the inguinal canal. The operations that have been divised in the past fifteen or twenty years are much more thorough in their detail than those in vogue before that time. Those of Bassini and Halstead are perhaps the most popular at present. These two operations are very much the same—they both commence by splitting open the inguinal canal—separating and amputating the sac, after having first made sure that there is no intestine nor omentum adherent within it. Bassini then separates the cord and lifts it out of the inguinal canal; then sews the aponeurosis of the internal oblique and the conjoined tendon of this muscle and the transversalis to the deeper portions of Poupart's ligament, commencing the sutures at the os pubis and carrying them up to the internal rings so as to compress the cord slightly. The cord is then laid external to the internal oblique and the external oblique aponeurosis united over it and then the skin is united. Halstead's operation differs from this in the first place by still further interfering with the spermatic cord. All the superfluous veins are dissected and, after ligation, removed so as to lessen its size and consequently the size of the abdominal openings. And in the second place it differs by the transposition of the cord external to the external oblique aponeurosis, so that it is covered only by connective

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tissue and skin. In the Halstead operation the external abdominal ring is closed entirely as is also the inguinal canal, and there is a direct opening made from the peritoneal cavity to the connective tissue layer.

The advantage of these operations is in closing the inguinal canal and theoretically, as far as this feature of the operation is concerned, the Bassini operation should have the preference; for the Halstead operation leaves a direct opening from the peritoneal cavity to the connective tissue layer which is loose and yielding. The Bassini operation on the other hand closes the dense structure of the external oblique aponeurosis over the internal ring as it was originally, and passes the cord through it just above Pouparts ligament and at the same time has closed up the original inguinal canal. The removal of the spermatic veins, as done in the Halstead operation, is of practical value only in those cases in which they are varicose, thus making the cord very large and at the same time of a consistence which is compressible and which will allow the more easy descent of a hernial sac. The McEwen operation has always been a very satisfactory one in my experience, but it certainly is not as thorough as the two just mentioned. Its characteristic feature is the preservation of the sac. This is done by passing a suture backwards and forwards through the sac from its distal extremity to its base or neck. This suture is then passed through the internal ring and then through the abdominal wall, except the skin, and out into the wound. It is then pulled so as to pucker up the sac and draw it up into the internal ring, thus making a plug which ought to offer considerable hindrance to the return of hernia after the adhesions have formed. I do not propose to weary you by mentioning more of the various operations which have been devised. They are legion and of course with only slight differences for the most part. I confine myself to my experience and to those which I believe are looked upon with the most favor by the profession.

As to the technique, the incision is made further up in doing the more modern operations. It should extend from a point a little external to and above the internal ring to the

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os pubis so that this opening will be well exposed. The inguinal canal is split open for its whole extent, the sac is separated and ligated at its neck and amputated. The cord is then dissected out of its bed and held up by a loop of iodoform gauze while the first rows of sutures are being placed. These commence at the os pubis and unite the conjoined tendon of the transversalis and internal oblique and the aponeurosis of the latter muscle to the deep edge of Pouparts ligament, carrying the sutures far enough to cause a slight constriction of the cord as it is brought through the internal oblique. The cord is then laid down external to the internal oblique aponeurosis and the aponeurosis of the external oblique is sutured over it, the cord descending into the scrotum between it anteriorly and Pouparts ligament posteriorly, thus forming a new external abdominal ring, the conjoined tendon and Pouparts ligament being sewed together behind it. In doing the McEwen operation it is necessary only to expose the external ring, for the sac is pulled up by the puckering suture into the internal ring through the inguinal canal and only the external ring sutured. All suture materials have been used in closing the wound—silver, silk, silk worm gut, catgut and kangaroo tendon—these materials have all been used as buried sutures. Bassini himself uses silk, buried, and has good results. Since the introduction of kangaroo tendon I have used it largely. I cannot say that I have been entirely satisfied with the results, for I have had several wounds suppurate, it is true in each instance only superficially, and the ultimate result of the operation has been successful, but it is very desirable to have primary intention throughout. I have been equally unfortunate with the tendon as prepared under Dr. Marcy's directions and with that prepared by myself.

My experience has forced me to feel that this is not the perfect suture we were promised when it was first introduced. I do not know just why it should be more difficult to render aseptic than catgut, unles it be that it is more dense and consequently requires longer time to absorb antiseptic fluids, but it does seem to me that it is so. Then there is one more

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thing I want to say about this material. I have seen it published that kangaroo tendon lasts ninety days in the living tissues. Now the only opportunity I have had to observe it has been in these suppurating wounds I have mentioned, and the tendon has been absorbed or so softened that it was entirely worthless as a suture at the end of ten days or two weeks. I have had perfect union by first intention after using kangaroo tendon, but I have had several suppurating wounds in spite of great care both in the preparation and use of the tendon, and also in the preparation of the patient and hands of operator and instruments. I have seen herniotomy wounds act in the same way in the practice of other surgeons—heal by primary intention first and open up afterwards—so that I am disposed to believe that these wounds are specially prone to act this way, and that it is not always the fault of the suture material alone. I am of the opinion that what is done at the operation tends to produce suppuration; there is a great deal of tearing and bruising of delicate cellular tissue in the separation of the sac and of the cord. I should do the dissection by the scissors if it were not for the abundant hemorrhage and the difficulty of cutting such lax tissue. I think, however, I shall try silk or wire which I can boil with my instruments. This operation is very apt to be followed by considerable œdema of the scrotum and inflammation of the testicle, due to the irritation of the tearing process just mentioned. These subside considerably, however, in the course of a week so that the patient is not uncomfortable from them after that time, but the enlargement of the testicle disappears gradually, and it is a month or more before it is again of normal size. This irritation of the testicle is less the farther away we can keep from it during the operation. If the sac is a short one and easily separated and we are not required to go deep into the scrotum, there is not apt to be any enlargement of the testicle; but in old hernias which descend deep into the scrotum and whose sacs are firmly adherent along the whole course of the cord and about the testicle itself, we are apt to have considerable orchitis follow. The operation is essentially the same in woman as in man, the round ligament

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passing through the abdominal rings and inguinal canal in place of the spermatic cord. Some operators seem to think of the round ligament as a very significant organ and do not hesitate to remove it entirely and close both rings. It seems to me, however, that the ligament has an important function and that it should not be sacrificed unless there are special reasons for doing so. As to the status of this operation in surgery, the mortality has been so far reduced that it is now almost nothing. Greiffenhagen in the St. Petersburg Medical Wock. of December 28, 1895, gives the following statistics: Number of operations reported without a death by McEwen, 82; Kocher, 220; Bassini, 239; Boca, 250.

Percentage of relapse: Schede, 10; Kocher, 8.6; Kuster, 6; Wolfler, 5; Bassini, 3; McEwen, 0.6; Kocher, by his latest method O, or 100 per cent. of permanent cures; length of time of observation not given.

Coley of New York, has performed two hundred herniotomies with only one death, and that was due to a pneumonia supposed to have been caused by ether; and of these cases there were only three relapses in two years. This is a fine showing and may be better than many can produce; but the statistics generally are so good that I do not hesitate to advise an operation simply to relieve the patient of the necessity of wearing a truss. This suggests another point to my mind; some surgeons favor the use of a truss after the operation; this I never do. I do not find it necessary and feel that by its use the patient would be deprived of one of the important advantages of the operation. In connection with this paper I show you a photograph of a scrotal hernia of unusual dimensions, which I have recently operated upon.

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A REPORT OF A CASE OF UMBILICAL HERNIA OPERATED ON SUCCESSFULLY ONE HOUR AFTER BIRTH.

A. L. ARNOLD, M. D.,
Owosso.

I was called to attend Mrs. G., aged 26, in her second confinement. Labor went on without incident, with the exception of slight obstruction during second stage due to a large umbilical hernia into the cord the size of an orange. The child was a male, and otherwise well developed, weighing nine pounds. Examination showed a large hernia full of viscera, with a fold of peritoneum firmly adherent to the walls of the sack. The abdominal opening was large, fully two inches, permitting an easy reduction of the mass which would instantly return when pressure was removed. I went immediately to my office and equipped myself to operate, and by the kindly assistance of Dr. Perkins, who administered the anaesthetic, I proceeded to operate in the following manner, after taking all antiseptic precautions. I reduced hernia well down by pressure, and making snug tension on edges of opening. I then applied a clamp firmly, leaving a margin of true skin about one-half inch above clamp. I then passed through immediately above the clamp nine braided silk sutures; then with a pair of Sims scissors I removed the sac, cutting away about one-quarter inch of the true skin. I then tied the sutures, approximated the skin perfectly, removed the clamp and applied a pad of iodoform gauze, over which was put a snug fitting bandage. The operation was completed in just one hour after birth. On the third day I examined the wound and found it healed by first intention. On

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the seventh day I removed each alternate suture. On the eleventh day I removed the remaining sutures and applied a wide strip of surgeon's plaster, running nearly around the body; this I allowed to remain for about six weeks, which, when removed, left a very presentable navel. This case I consider of interest, not only from its comparatively rare occurence, but so far as I can ascertain it is the earliest operation of the kind recorded.

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DISCUSSION OF THE PRECEDING PAPERS.

DR. MACLEAN: The section has dwindled down almost to a point of adjournment, but still I do not like to allow these two very excellent papers to fall still-born, and therefore I will say just a word about them. Dr. Maas has presented this condition of lipoma very plainly and distinctly and in a very interesting manner. All surgeons have different experiences. One man will meet a great many cases of one kind and another of another. For my own part I have not found lipoma very frequent in hernia—in complicated hernia, but sometimes I have. But I do not see very much room for discussion of this paper further than to say it is an instructive and interesting one. And so with Dr. Tappey's. Dr. Tappey gave a very clear and interesting account of these different methods of operation.

There was one idea with regard to hernia that has been a sort of nightmare on my mind for a good while. I hesitate to mention it because it is somewhat of a discouraging nature, and we require all the encouragement and as little of the reverse as possible. I have always looked upon hernia as really a result of the natural conformation of the human figure. It is as natural for some people to have hernia, and as inevitable, as it is for some people to be six feet tall and others five feet and so on. I mean to say that it is really the result of a natural defect in the make-up of the man, and it comes from the attitude which the human animal has assumed. When our ancestors away back a long time ago went on all fours, hernia did not exist, and I have no doubt that hernia has existed very much more in by-gone days than it does now, and in the process of evolution and development of the man animal, I believe that hernia will be evoluted out and that these weak points in process of time will disappear; that evolution will straighten matters up so that the surgeon

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will be deprived of that field of useful operation and the man animal relieved from the pain of the operation and the still greater annoyance of wearing a truss. I believe the true pathological explanation of hernia is the upright attitude, and the fact that man is not yet even physically perfectly developed. But you see there is also some encouragement because evolution is ever progressive, and we can look forward to a time when, as the result of evolution, we will get rid of hernia altogether.

DR. MAAS: I did not mean to say that hernia is always caused by lipoma. I have only spoken of those cases where the hernia was found there.

DR. MACLEAN: No, I did not understand you to say that.

DR. TAPPEY: I want to say that I agree perfectly with what Dr. Maclean said, that it is the function of the surgeon now-a-days to assist in the process of evolution, to get the human race tending towards a better conformation in the future.

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A SURGICAL PARADOXOLOGY.

D. MILTON GREENE, M. D.,
Grand Rapids.

The title of this brief report of what seems to me to be a case unique was suggested by the history of the case obtained from the patient and older members of the family. If it be true that "early and prudent fear is the mother of safety," we must conclude that this young man was both fearless and imprudent.

Mr. F. D. L., age 25, who was referred to me by Dr. L. Barth on account of an injury to his eye, gave the following history:

Have always enjoyed good health. When five years old he fell and fractured and dislocated his left elbow joint. Dr. Wilson of Rochester reduced the fracture and dislocation and he made a good recovery. At seven he fell from a load of wood and fractured both bones of his left leg below the knee, from which he recovered without deformity. At eight years of age he fell from a hay-mow and fractured and dislocated his right elbow joint, breaking both ulna and radius, from which he recovered without a blemish. At nine years he got the thumb of his right hand in the cog-wheels of a corn sheller which cut off the distal phalanx and crushed his thumb to the proximal phalanx. This injury left him with a short and badly scarred thumb, but yet useful.

About six months later he attempted to empty a pound of powder from a large powder flask into the fire in the cook-stove. The whole of the powder exploded, filling his face, eyes and hands with powder and burning them so badly that he was blind for some time, but he recovered without serious

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damage to his eyes, face or hands. As "heaven from all creatures hides the book of fate," he had not yet learned to dodge danger, and at ten years of age a large barn door blew violently against him, cutting his ear open and nearly severing it from his head. The surgeon and nature again came to his aid and his ear was restored to quite a normal condition, leaving him without deformity.

There were yet some parts of his anatomy which had escaped injury, and the next accident was a fall upon his chin with his tongue between his teeth, which nearly severed that member about three-quarters of an inch from the tip. A deep scar is left in the tongue that tells the story. He next stepped upon a broken bottle and thrust a piece of glass in the front part of his heel. The wound healed and all went well for two years, when a swelling occurred at the metatarsophalangeal articulation of the big toe. Suppuration followed, and finally they removed therefrom a piece of glass $\frac{1}{4}$ by $\frac{5}{8}$ of an inch in size which had remained in his flesh two years. From this time he had sustained no serious injury until today, and he is 25 years old. He hired to the Michigan Vapor Stove company and had worked nine hours when they started him to running a punch machine. In less than half an hour two pieces of the steel punch flew, one of which struck his left cheek just below his eyelid, cutting through the skin; the other fragment struck the edge of the lower lid of the right eye, passing through the lid and sclerotic near the sclerocorneal junction and lodged in the vitreous body. There was considerable hemorrhage into the aqueous chamber and also into the vitreous.

I sent him to the hospital and had ice compresses continuously applied for four days. By this time the blood in the aqueous chamber had become absorbed sufficiently so I could locate the piece of steel with the ophthalmoscope. When I first saw him the wound in the sclerotic, which was quite large, was gaping and there was some vitreous protruding therefrom; this had prevented healing. Knowing that either the steel or the eye must be removed I determined to try the former. Under cocaine anesthesia I enlarged the sclerotic

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opening to a considerable extent, about $\frac{1}{4}$ inch. After having carefully located the foreign body with the ophthalmoscope with a pair of fine curved iris forceps I succeeded very soon in grasping the steel and removed it. He was then put to bed in a darkened room and ice cold compresses applied day and night for several days. At the end of a week he had no pain and he was allowed to get up and dress and go into the lobby. The wound was healing and the eye not inflamed. Being exposed to the light brought on photophobia and extreme lachrymation with quite severe pain. He was again put to bed, cold compresses applied and the pain subsided. At the end of three weeks he left the hospital with vision of 20-200 in the injured eye. Vision has steadily improved as the blood has been absorbed from the vitreous.

He resumed work in a little over four weeks from the time of his injury. The unusual and I might say unique history which this case presents, together with the success achieved in removing the steel from his eye, makes it worthy of record.

It seems almost incredible that a person could have met with so many severe accidents and escaped without deformity or more serious consequences, and but for the fact that he comes from a good family, is candid and unpretentious, and that other members of his family verify his story, I should hesitate to believe it. He has, as you will observe, sustained nine severe injuries. I have examined him carefully and find only the evidences of injury left which I have mentioned.

Dr. Greene in closing said: Before coming here I had the patient come up to my office and I made another test of his vision. Very much to my surprise the blood in the vitreous had cleared away and he had almost normal vision in the injured eye.

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OBSCURE INTRA-ABDOMINAL LESIONS.

F. B. TIBBALS, M. D.,
Detroit.

The diagnostic difficulties presented by intra-abdominal lesions are many and varied, and fortunate indeed is the surgeon of experience who escapes error. Many an abdomen has been opened and nothing found to account for existing symptoms; many a coeliotomy has disclosed conditions far different from those previously diagnosed. When we consider the number of important viscera liable to injury or disease, and the obscurity of symptoms pointing thereto, the wonder is that we are not more frequently led astray. From the region of pancreas, gall bladder and pylorus to the appendix and viscera of the female pelvis inclusive lies a surgical field rich in possibilities, teeming with uncertainties and perplexing doubts.

I do not propose in this, a clinical paper, to cover the diagnostic difficulties of this great surgical field, but by reporting two unusual acute cases to illustrate some of the knotty problems with which each of us may at any moment be confronted.

CASE 1. Miss Ida S., age twenty; took cold during menses and suffered from dysmenorrhœa, with mild ovarian pain for several weeks following. A vaginal examination disclosed a retroverted uterus, which was considered the cause of continuance of pain; ovaries and tubes seemed normal, were not sensitive on pressure, and I found at no time during this period the slightest rise in temperature. The treatment consisted of the usual uterine sedatives—douches and rest. I had not seen her for a week when at 10 a. m., on September 20,

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1895, I was called to find her with temperature 102½, pulse 90; sharp chill the previous evening and great pain and sensitiveness over McBurneys point. Vaginal examination again disclosed nothing except a retroverted uterus, firm pressure with vaginal finger eliciting no sensitiveness of right ovary or tube. Dr. Donald Maclean saw her in consultation with me at 4:30 p. m.; temperature then 104 F., pulse 110; pain easier; no tympanitis or vomiting.

We advised immediate operation, but various delays incident to securing family consent and removal to hospital occurred and the patient presented temperature 105° F., pulse 130 when ready for operation at midnight.

The abdominal incision was made adjacent to the appendix, but the appendix was found to be normal. Further examination disclosed a broken-down right ovary, the abscess cavity capable of holding perhaps one-half dram. This unexpected abscess had undoubtedly ruptured at the inception of the attack and already had induced localized septic peritonitis. Both tubes were found swollen (catarrhal without pus) and were removed with some difficulty through the original incision. The abdomen was thoroughly flushed and drained, but the peritonitis extended and patient died twenty-eight hours later.

CASE 2. Mr. J. C. W., age 35. Was riding his wheel between 5 and 6 p. m., Saturday, April 25, 1896. Threw himself off in order to escape approaching electric car and struck the asphalt pavement with some force, the gluteal region being the impinging part. He thought himself uninjured, and remounting his wheel rode five miles, went home, ate a hasty supper and took a young lady to an evening entertainment. After escorting her home and while riding down town on the wheel he for the first time felt abdominal pain which soon so increased in intensity that he sought relief in a convenient drug store where I was called to see him at 12:30 a. m., seven hours after his fall. He attached no importance to his fall and as the only objective symptom was pain I gave him anodynes, took him home in a coupe and left him resting easily.

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Sunday, 10 a. m. Had a restless night, little pain but great soreness, a full breath painful, no vomiting, had urinated, temperature 99, pulse 90.

5 p. m. Bowels had not moved nor gas passed since morning visit, though had taken calomel 3 gr. and phosphate of soda 1 dram.

Temperature now 100°, pulse 120; tympanites beginning. Secured Dr. Maclean in consultation two hours later. Temperature now 101½, pulse 130, tympanites more marked. Four ounces of clear urine were drawn by catheter being the entire quantity secreted since 9 a. m. The rapidly developing tympanites, rising temperature and pulse and paresis of intestinal tract were considered indicative of some unusual intra-abdominal lesion, and immediate operation was proposed and accepted.

Operation 9:30 p. m. with Dr. B. P. Brodie as anæsthetist. A three inch incision was made below the umbilicus and the accessible viscera carefully examined, but neither hernia, volvulus, intussusception, nor hemorrhage were found. The intestines were congested and much distended with gas with much free fluid in the abdominal cavity.

The incision was now extended upwards, the intestines turned out, and careful search made for the point of rupture. At last on the posterior surface of the stomach close to the pylorus was found a raw surface, the result of ruptured adhesions, and a small hole completely through the stomach wall, through which contents of stomach were oozing. The point of rupture was the site of an old ulcer, of which neither the patient nor his family could give any history, and the concomitant adhesions to the duodenal mesentery when torn loose by the jolt of his fall made rupture of the weakened stomach wall possible. The wound was carefully repaired, cavity thoroughly douched, and the long incision rapidly closed. Patient rallied well and apparently would have recovered but for an unsuspected abnormality of the kidney, to which I attribute his complete suppression of urine, for no urine whatever was secreted from the catheterization 2½ hours before the operation until his death at 5 p. m. the next day.

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The post mortem revealed a congested right kidney, normal in size, while the left kidney was only ¼ usual size and firmly embedded in the median line against the head of the sacrum. This abnormality is of interest both as an abnormality and as a factor in the final outcome of the case. Evidently the one kidney capable of secreting became inactive from shock and thus deprived the patient of otherwise good prospects of recovery.

The condition of stomach and intestines, post mortem, was excellent, the congestion and distention of intestines and all evidences of peritonitis having disappeared, while the hole in the stomach was completely healed.

These two cases met with in my practice during the year past seem to me worthy of record as illustrative of the diagnostic difficulties of intra-abdominal lesions. Primary abscess of the ovary is a condition of extreme rarity and one which we can seldom recognize during life. In my case diagnosis was not possible until the rupture of the abscess, when exact diagnosis became of little moment as the rapidly developing symptoms made clear the need of prompt operative interference. The other case is remarkable in that a deep ulcer of the stomach had existed and extensive adhesions formed without the knowledge of the patient, and that so slight an injury as the jolt of a fall upon the buttocks cost him his life.

My thanks are due to Dr. Maclean for the skill, unfortunately unavailing, with which he wielded the knife, as well as for his valuable diagnostic assistance.

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A NEW METHOD FOR THE RADICAL TREATMENT OF FEMORAL HERNIA.

J. H. KELLOGG, M. D.
Battle Creek.

So much has been said and written upon this subject, and so many methods of various sorts have been proposed, that it would seem that the last word that could be said upon the subject must have been already uttered, and it is possible that what the writer is about to say may be simply a reiteration of what some worker in the surgical field has said before. Nevertheless, if this be true, the fact is not known to me, so I will proceed to describe what I hope may be a helpful contribution to the successful treatment of hernia.

The method recommended by leading surgical authorities for the radical treatment of femoral hernia may be briefly stated as follows: Cutting down upon the sac, the latter is opened, emptied, transfixed, ligated, cut off and pushed into the abdominal cavity. The canal is then obliterated as far as possible by carefully suturing the sides of the opening by means of kangaroo tendon or silk worm gut, the sutures being buried and left in place. This method has doubtless proved satisfactory in many cases, but it is evident that it does not deal thoroughly with the internal end of the canal through which the intestine or omentum has found exit from the peritoneal cavity, and consequently there is a possibility of the return of the hernial protrusion. Two years ago when operating for the cure of femoral hernia, and employing the ordinary method, it occurred to me that an improvement might be made by turning the neck of the sac upward. I accordingly adopted the following procedure:

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After transfixing and ligating the sac, instead of cutting all the ligature ends short I left two of them hanging, then passing an aneurism needle from below upward along the canal and just outside of the hernial sac, hence extra-peritoneal, I caused the blunt end of the needle to press outward at a point about an inch and a half above the upper border of the femoral ring. Carefully cutting down upon the end of the needle I slipped a loop of silk worm gut through the loop of silk with which the needle was threaded. I then pulled the aneurism needle back, the loop of the silk worm gut was dragged back with it, and the long ends of the ligature employed in tying the sac were slipped through the loop, and thus pulled upward through the opening above the ring by making traction upon the ligature ends. I was thus able to drag the stump of the sac upward to a point above the internal opening of the femoral canal and at the same time to fold the sac upon itself, thus obliterating the passage at the internal ring instead of simply closing it at the external ring. In dragging the mouth of the sac upward I also took pains to pucker and tie the surrounding fasciæ and other tissues which are drawn upward with the sac along the femoral canal after the successive application of three or four ligatures. In this manner I was able to fill the canal with consolidated tissue; the stump of the sac was fixed in its upturned position by threading each ligature end upon a needle and passing through the tissue in such a way that by tying them through the small opening through which they were first drawn they were firmly closed. Sutures were then introduced and closed the lower opening of the femoral canal, and the wound was closed and treated in the usual way.

This plan succeeded so well that I have since adopted it in all cases of femoral hernia upon which I have operated. In one of these cases I was performing a laparotomy at the same time, and so took the opportunity to notice the effect upon the internal opening of the femoral canal of dragging the stump upward. The opening, in this case, was large enough to easily introduce the tip of my little finger from the peritoneal side. After the neck of the sac has been drawn forward

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and secured in place, the peritoneal end of the canal was found completely obliterated, and it was scarcely possible to locate it. It was represented simply by a pressure upon the fold of the peritoneum. There seemed to be no possibility of a return of the hemorrhage, and the subsequent history of the case has shown the patient to be radically cured. I was glad to have this opportunity of verifying the effect of turning the mouth of the sac upward in the manner described.

In the several cases in which I have employed this operation the results have been most satisfactory.

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SECTION ON MEDICINE AND OBSTETRICS.

OFFICERS.

D. F. STONE, Bay City, Chairman.
ANDREW P. BIDDLE, Detroit, Secretary.
HERBERT M. KING, Grand Rapids, Orator.

SECRETARY'S MINUTES.

FIRST DAY, THURSDAY JUNE 4th.

2 O'CLOCK P. M.

The Section was called to order by the Chairman. The following papers were read and discussed:

I. Typhoid Fever; Etiology and Pathology, Henry B. Baker, Lansing.
II. Symptoms and Diagnosis, Hugh McColl, Lapeer.
III. Treatment, George Duffield, Detroit.
IV. General Discussion, opened by George Dock, Ann Arbor.
V. Endocarditis in Childhood, C. G. Jennings, Detroit.
VI. Degenerative Processes in Disease of the Skin, W. F. Breakey, Ann Arbor.
VII. Dermatitis Herpetiformis, A. E. Carrier, Detroit.
VIII. The Mind; Its Relation to Health and Disease, Mary E. Green, Charlotte.
IX. Report of a Case of Landry's Paralysis, with remarks, Johann Flintermann, Detroit.

The following papers were read by title.

X. Arrest of Small Pox in its Vesicular Stage, Alonzo Bryan, Detroit.
XI. The Study of Crime and Degeneration from a Medical Standpoint, Willis S. Anderson, Detroit.
XII. An Old Letter; Pneumonia, W. C. Wright, Unionville.
XIII. Diphtheritic Enteritis, with Report of Two Cases, Mary C. Smith, Grand Rapids.
XIV. Chorea, F. R. Blanchard, Lakeview.
XV. Albuminuria, David Inglis, Detroit.
XVI. Erbs Primary Muscular Atrophy, with Report of Two Cases, E. S. Pettyjohn, Alma.

SECOND DAY, FRIDAY, JUNE 5th.

9 O'CLOCK A. M.

The following papers were read and discussed:

I. Exophthalmic Goitre, with Report of Six Cases, Ralph H. Spencer, Grand Rapids.
II. Questions Concerning the Etiology and Prevention of Pulmonary Consumption, E. L. Shurly, Detroit.
III. Neuritis, W. J. Herdman, Ann Arbor.

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AFTERNOON SESSION—2 O'CLOCK.

The first order of business was the election of officers, which resulted as follows:

Chairman—Charles W. Hitchcock, Detroit.
Secretary—Andrew P. Biddle, Detroit.
Orator—Ernest L. Shurly, Detroit.

The following papers were read and discussed:

I. Milk as an Article of Diet, Charles Douglas, Detroit.
II. The Outlook in Serum Therapy, Chas. T. McClintock, Ann Arbor.
III. Ichthyol and Some of its Uses, Emma D. Cook, Detroit.
IV. Antisepticism in Midwifery, George K. Johnson, Grand Rapids.
V. Puerperal Cystitis, W. H. Sawyer, Hillsdale.
VI. Uterine Stenosis, Jeanne C. Solis, Ann Arbor.

The following papers were read by title:

VII. The Cure of Incurables, J. H. Kellogg, Battle Creek.
VIII. The Treatment of Chronic Articular Rheumatism by Fixation in Plaster of Paris Dressings, W. R. Burtless, St.Clair.
IX. The Therapeutics and Pharmacology of Digitalis and its Allies, Arthur R. Cushny, Ann Arbor.
X. Digitalis; its Use and Abuse, E. Bigham, Grand Rapids.
XI. An Experimental Study in the Amylolytic Action of Taka-Diastase, E. M. Houghton, Detroit.
XII. Local Medication in Diseases of the Respiratory Tract, D. Milton Greene, Grand Rapids.
XIII. Foreign Body in the Larynx; Report of a Case, E. W. Davis, Saginaw, W. S.
XIV. The Care of Patients After Labor, J. G. Lynds, Ann Arbor.
XV. Puerperal Eclampsia; Report of Eight Cases, Collins H. Johnston, Grand Rapids.
XVI. Embryonic Miscarriage, J. R. Dodge, Hudson.
XVII. Twenty Years of Obstetrical Practice; a Few Interesting Points, G. W. Chrouch, Shaftsburg.
XVIII. Central Laceration of the Perineum, S. I. Small, Saginaw, W. S.
XIX. Some Things Found Helpful in Obstetrics, C. S. Cope, Ionia.
XX. Care of Breasts After Stillbirths or Where an Obstacle to Nursing Exists, T. S. Murdock, Northville.
XXI. Everyday Mistakes in Obstetrical Practice and the Results, L. J. Lennox, Detroit.
XXII. Cystitis in the Female, and Its Allied Irritations, J. A. Porter, Brooklyn.
XXIII. Superfœtation and Superfecundation, with a Report of a Case of the Former, Alvin L. Bailey, Chesaning.
XXIV. Partial Abortion; Expulsion of Amniotic Sac Alone; Three Specimens, Dr. Wm. C. Stevens, Detroit.

Adjourned.

ANDREW P. BIDDLE,
Secretary.

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THE ETIOLOGY AND PATHOLOGY OF TYPHOID FEVER.

HENRY B. BAKER, M. D.
Lansing.

ETIOLOGY.

The fact that by request of a committee this paper has been prepared to "open a discussion" on the etiology and pathology of typhoid fever implies that neither of these two branches of the subject is settled. In connection with both branches, there are, however, very many facts which are more or less well established; so it must be one function of this paper to recall to our minds some of these facts, and, if possible, to do this in such order as shall suggest harmonious interpretations of the facts to aid us in arriving at conclusions concerning the etiology and pathology of this important disease.

1. *Filth as a factor in the causation of typhoid fever.*

It seems to me that it is established that typhoid fever is a "filth disease," that is, that what we know as "filth" has had much to do in the causation of typhoid fever.

The eminent sanitarian, Dr. Joseph von Foder, compiled the facts relative to the surroundings of fatal cases of typhoid fever in Buda Pesth, Hungary, during fifteen years, 1863-77, with result as follows:*

Deaths from typhoid fever per hundred houses, when the *interior of the dwelling* was:

(1.) Very clean 165
(2.) Clean 177
(3.) Dirty 182
(4.) Very dirty 356

*Archi fur Hygiene Zweiter Band, 1884, Zeite 269, 272.

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There was gradual increase from "very clean" to "dirty," and a very great increase from "dirty" to "very dirty." Compared with the "very clean," there were more than twice the proportion of deaths in the "very dirty" dwellings.

With the yards surrounding the houses the result was as follows: Typhoid fever deaths per one hundred houses when the *yard* was:

(1.) Very clean.....159
(2.) Clean.....186
(3.) Dirty.....208
(4.) Very dirty.....282

The evidence was conclusive that want of cleanliness outside the dwelling had great influence in the causation of typhoid fever, but not nearly as great as had want of cleanliness inside the dwelling.

Other evidence that filth is a factor in the causation of typhoid fever is the experience in Munich before and since the filth of the city has been promptly carried out of the city by means of sewerage. Thus in 1852-9 when the drinking water was from wells and the human excreta was stored in overlying vaults, the mortality from typhoid fever was 24.2 per 10,000 inhabitants. In 1860 the vaults were required to be cemented; in 1860-7 the typhoid mortality was reduced to 16.6 per 10,000. In 1866-73 a system of sewers was commenced involving the commencement of the use of a general water supply. In 1868-75 the typhoid mortality fell to 12.7. The sewers were continued in 1874-80. In 1877-79 the typhoid mortality was reduced to 7.8. In 1881-4 the sewers were further continued and a good spring water was added to the general water supply. The typhoid mortality decreased until in 1884 it was only 1.4 per 10,000 inhabitants.* The death rate from typhoid was then only about one-seventeenth what it had been when Munich drank water into which human filth percolated.

This indicates the *nature of the filth* which seems to have causal relation to typhoid fever—the excretions of human bodies. This evidence of the etiology is in harmony with

*This is graphically exhibited in the diagram.

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some of the evidence of the pathology of the disease—one approved name of the disease is "enteric fever;" an important effect of the disease is in the intestine; it is reasonable to suppose that the cause of the disease may be given off from that part of the body in which the pathological change occurs. Apparently this is true; the disease appears to be spread by a cause which goes from the intestine, and is capable of producing the disease when it reaches the intestine of another person.

TYPHOID FEVER AMONG PLUMBERS.

In a report of the Board of Health of Montclair, New Jersey, mention was made of a plumber being attacked by typhoid fever in consequence of having made repairs in one or more of the houses in which the fever had occurred.* A similar case occurred under my observation in Lansing, Michigan, a few years ago.

IS THE CAUSE A CHEMICAL POISON OR IS IT SPECIFIC?

Many classes of facts seem to demonstrate that the cause of typhoid fever cannot be simply a non-living chemical poison not capable of reproduction, and that it must be an organized body capable of reproduction and continuous multiplication. For instance as an illustration, from a house in Philadelphia in which there was typhoid fever a man went to Plymouth, Penn., was taken sick with typhoid fever, his discharges were thrown out on the snow which melted and was washed into a small mountain stream which served as the source of a public water supply. In a short time about a thousand persons who drank that water contracted typhoid fever, while many other persons in the same village who drank water from wells, the water from which when analyzed at the laboratory of the Michigan State Agricultural College was found to be very much more badly contaminated with leachings from human excreta, did not then contract typhoid fever, although afterwards when there had been opportunity for the privies to have been "infected" with typhoid discharges the disease appeared in some instances to have been contracted from water in the underlying wells. In the

* Journal American Medical Association, volume 23, page 691.

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mountain stream the dilution was such as to make it impossible that so many cases of fever could have been caused by any chemical poison; there must have been reproduction of the "infection" in the intestines. And the contaminated well water did not cause typhoid fever until after it became infected.

At Cumberland, Md., in 1889-90, the evidence is that typhoid fever was not present until the discharges from a *typhoid patient* living on one of the little streams which empties into the Potomac about 200 feet above the pumping station found their way into the city water supply.* Dr. Kober who has made a study of the subject says: "Such instances can be recited by the hundreds."* I am myself familiar with many such instances.

In a great many instances, notably the outbreak at Plymouth, Pa., the tendency of such evidence is to prove that typhoid fever is not caused by non-infected human excreta, but by excreta of typhoid fever patients. This is equivalent to saying that typhoid fever is caused by a specific organism or organisms.

THE PRACTICAL RESTRICTION OF TYPHOID FEVER PROVES ITS COMMUNICABILITY.

The lessening of typhoid fever by sewerage and improved water supplies, shown in diagrams and charts I and II submitted herewith, is evidence that typhoid fever is communicable, and that it may be restricted by the measures mentioned.

A similar line of evidence is that in the diagram entitled "Lives Saved by Public Health Work," wherein it is shown that during those years in which the State Board of Health has been laboring for the restriction of typhoid fever the mortality has been less than it was before. That diagram relates to the entire state. If we confine the inquiry to local outbreaks, and separate them into two classes, as is done in the construction of the diagram, "Isolation and Disinfection Restrict Typhoid Fever," it is plain that isolation and disin-

*Report of Dr. George M. Kober, in Annual Report Comm. Dist. of Columbia, 1895, page 259.

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fection restrict typhoid fever, which implies that it is a communicable disease. The disinfection includes that of the bowel discharges from the patient; and it should by all means have included that of everything in any way soiled by their urine which, in some cases, has been found to be almost a pure culture of the typhoid bacillus.*

In the outbreaks studied, probably the urine, dried on linen, has been entirely overlooked as a cause of typhoid fever. But the evidence seems to be conclusive that in townships, villages and small cities typhoid fever may be restricted so that only about two cases, and an average of one-fourth of one death shall occur to each outbreak. In the year 1891 a few epidemics greatly increased the average in localities where isolation and disinfection were neglected, but the results of isolation and disinfection were about the same as in the other years.

TYPHOID FEVER IS A COMMUNICABLE DISEASE SOMETIMES WATERBORNE.

It seems to me to be established that typhoid fever is a specific communicable disease. How is it communicated?

The facts relative to the lessening of typhoid fever in Munich, and facts of similar import in cities throughout the world, seem to demonstrate that the prompt removal of excreta by sewers, associated as that usually is with an uncontaminated water supply, decreases the *spread of typhoid fever*.

ERRATUM.

After the word occurred, in sixth line from bottom on page 255, insert the word "until".

fever occurred after the introduction of the sewers. Washington, with a daily individual supply of 177 gallons has an average annual mortality of 6.2; while New York, with 74 gallons per capita, has 3.1 deaths yearly to 10,000 population. Abundance of water alone, as might well be supposed, does not limit the spread of typhoid fever." *

* Report of Medical Society, District of Columbia, in Journal American Medical Association, volume 23, 1894, page 82.

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In such cities as have sewerage, but still have a contaminated water supply, typhoid fever still remains. Philadelphia is an example. Chicago has been a noted example. Cities like New Orleans where there has been imperfect sewerage, but a water supply from rain water cisterns not much contaminated by human excreta, do not suffer much from typhoid fever.

Logically it seems to follow that the large part of the typhoid fever must be caused by typhoid excreta in the drinking water.

There are on record specific instances too numerous to mention where typhoid fever epidemics and local outbreaks have been traced to the use of water infected with excreta of a typhoid fever patient.

LOW WATER IN WELLS AND TYPHOID FEVER.

The foregoing leads naturally to an interpretation of the facts concerning the very close relation of low water in wells to typhoid fever in localities dependent upon wells for the water supply. Many years ago Dr. George E. Ranney, then Secretary and later President of this Society, called attention to an increase in typhoid fever at a time of low water in wells. Dr. Foster Pratt, also an ex-President of this Society, spoke in June, 1874, of a similar circumstance under his observation. With the view of studying the subject systematically, about twenty years ago I induced regular observations and records of the depth of water in wells in Michigan. Five or six years later I tabulated the results and found a very striking relation. Herewith is a diagram (plate No. 681) exhibiting the facts for fourteen years, 1878 and 1880-92. It is plain that the relation is very nearly quantitative. The lower the water the more typhoid fever.

Prof. Max von Pettenkofer was the first to make a systematic study of this subject, and he established the fact of a quantitative relation of typhoid fever and ground water in Munich.* His interpretation of the fact, however, was not that the disease was caused by drinking in the germs with the infected water, as was my belief; but that it was caused by

* "Boden and Grundwasser," etc., by Pettenkofer, Munich, 1869.

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breathing typhoid germ-laden air forced out of the ground by fluctuations of atmospheric pressure. This cannot be the true explanation of the facts in Michigan, because my tables and diagrams show that the average daily range of atmospheric pressure does not sustain such relations to typhoid fever as to make this possible; the range of pressure is at its minimum in July and its maximum in January, while typhoid fever has its minimum in April and May and its maximum in October; and a curve representing its increase and decrease shows no influence of the atmospheric pressure.

On the other hand, the drinking water interpretation takes account of the fact that in time of low ground water a well *in use* drains a wider area and is therefore more liable than in times of high ground water to be infected by leachings from a distance. Again it takes account of the fact that any infection which may reach the well will be much more diluted when the ground water is high than when it is low; the chances of contracting typhoid fever are therefore greater when the water is low.

There is another interpretption which may be true under some circumstances, not, however, so universal as the drinking-water explanation, but which may contribute to the same result. When the ground water is low the *surface of the earth* will generally be *dry*. Human excreta on the surface of the earth or in shallow receptacles will, more generally than when the ground water is high, be in a condition to permit the wind to detach any typhoid germs which may be on its surface or which may be trampled into dust, and to float them off, to infect air, food or drink, or to be washed from roofs of buildings into the rain-water cistern.

TYPHOID FEVER SPREAD BY MILK.

Mr. Ernest Hart has collected and tabulated facts relative to fifty outbreaks of typhoid fever spread by milk.

In the Report of the Health Officer of the District of Columbia for 1895,* Mr. Hart's tabulation is included with eighty-eight other outbreaks collected by Drs. Busey and Kober; altogether there are tabulated the details of date,

* Pages 346-364.

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place, number of cases, deaths, circumstances of outbreak, reporter and reference to publication, relative to one hundred and thirty-eight outbreaks of typhoid fever in different parts of the world believed to have been caused by infected milk. (The table with additions collected by myself is submitted as an appendix to this paper.)

Many of the outbreaks caused by infected milk were traced further back to infected water used, in fifty-four instances, for washing the cans and utensils. In fourteen instances the intentional dilution of the milk with polluted water is admitted. In six instances the infection is attributed to the cows drinking or wading in sewage-polluted water thus affecting the udder and finally the milk. In three instances the infection was spread in ice cream prepared in infected premises. In twenty-one instances the dairy employes also acted as nurses.† In outbreak No. 1 reported by Dr. Taylor in Edinburgh Medical Journal May, 1858, "The outbreak which affected seven familes was traced to a supply derived from a milk man in whose cottage there were cases of typhoid fever. The milk was kept in the kitchen where the children lay, and the mother, who was the nurse, also milked the cow."*

In a few instances water seemed to have no part in the spread of the disease.

TYPHOID FEVER SPREAD BY OYSTERS.

Uncooked oysters "fattened" in typhoid-infected waters are now known to be a means of spreading typhoid fever. An outbreak due to this cause at Wesleyan University, Middletown, Conn., in October, 1894, was thoroughly investigated and the results published in the report of the Connecticut State Board of Health for 1894.† Two cases of typhoid fever, the discharges from which went through a private sewer into the Quinnipiac river near where the oysters were placed in fresh water to "fatten" (absorb fresh water) just before they were to be used, were the source and cause of the outbreak. Twenty-three students and six other persons who attended the banquet contracted the disease.

* Page 330.

† Report by H. W. Conn, Professor of Biology, Wesleyan University, page 243-264.

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The general subject of typhoid bacteriology and oysters in salt and fresh waters, at ordinary temperature, was afterwards investigated by Charles J. Foote, Demonstrator of Bacteriology in Yale University.* "Many bacilli were found in the oyster juice and in the stomach of the oyster a month after infection, from which it appears that typhoid bacilli may live even longer in the oyster than in the water which surrounds it, from which they usually disappear within three weeks, when new infection does not occur."†

TYPHOID FEVER SPREAD BY INFECTED CLOTHING.

Dr. Kober in the report of the health officer of the District of Columbia, for 1895, page 259, summarizes a report by Gelau as follows: "A German artillery regiment, with an average mean strength of 353 men, between the years 1873 and 1884 furnished not less than 146 cases of typhoid fever. The water supply was above suspicion; disinfection of the quarters and even abandonment of the barracks failed to check the disease. This finally led to the suspicion that the clothing might be the source of infection, especially as the garments were promiscuously worn. Examination revealed the presence of fecal spots in a number of pantaloons. The clothing was now disinfected, after which only three mild cases appeared, and these were confined to the men engaged in disinfection."

TYPHOID FEVER SPREAD THROUGH THE AIR.

In several instances brought to my notice but not published typhoid fever has, apparently, been contracted by taking the specific cause into the mouth with the air inhaled. In two such instances the nurses who contracted the disease slept in the same room with their patients. Bearing in mind the frequency with which a sleeping person breathes through the mouth, and the fact that then the normal protection of the nose with its moist hairs and disinfecting saline mucus constantflowing downwards to be evaporated and imprison incoming dust and germs, one may realize the greater liability of a sleeping person to contract typhoid fever. In the southern

* Med. News, March 23, 1895.
† Modern Medicine, February, 1896; page 40.

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states it has many times been observed that yellow fever is much more often contracted by sleeping in an infected locality than by visiting it in the day time.

While investigating an outbreak of typhoid fever in the state prison at Jackson, I contracted typhoid fever, notwithstanding I took no food or water while there. The outbreak occurred soon after a new prisoner had come into the prison, and the disease was apparently spread in more ways than one, but not through drinking water. A wooden bucket in each cell every night was emptied every morning and an attempt made to disinfect it by rinsing it with a disinfecting solution; but inspection led me to think that the disinfection was not complete, so it is possible that some of the cases were caused by emanations from an infected bucket, because no effort was made to have the same bucket go to the same cell every night. Among the first persons about the prison to contract typhoid fever was the guard who was stationed on top of the wall immediately over the place where the buckets were each morning emptied into the sewer, then rinsed and placed in rows to be dried and aired during the day. The typhoid patients were put in the hospital on the fourth floor of the central building, and their dejecta went into a soil pipe in which there was a break, or from which air could pass through a "dead end" to a sewer under the lowest floor.

In cells along a line between this source of sewer air and a very large ventilator at the other end of the room prisoners contracted typhoid fever, so that there was reason to believe that the disease was spread through the air from the soil pipe on its way to the ventilator. To answer the question whether this was possible, because it was known that micro-organisms are not given off to the air from moist surfaces, a bottle was sterilized, filled with sterilized water, the bottle held in the "dead end" to the sewer, the water allowed to run out, and the bottle to fill with air from the sewer. While this was being done, the soil pipe from the hospital on the fourth floor was flushed, foul air rushed out, but no fluid or solid came near the bottle. Meantime, with other members of

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the State Board of Health, I was standing near in conversation with the warden of the prison. The bottle was taken by Prof. Vaughan to the labratory at the University, and I understand that Prof. Vaughan found the bacillus of Eberth or at least a pathogenic bacillus in its interior. Soon after my return home, I was mildly sick for nearly three weeks with unmistakable typhoid fever contracted, apparently, through the atmosphere.

A few years ago there was typhoid feven in Iron Mountain, Mich., and it was especially noticeable to Dr. Anderson, then in that city, that there were most fever cases in houses the rear ends of which were on the three sides of a sort of a court in which were numerous foul privies which in wet times drained into a foul pond near the center of the court, but in a dry time permitted their overflowed contents to be trampled by those who passed through into dust to be blown about by the winds. One windy day I inspected the locality and it was easy to understand that if the specific cause of typhoid fever had been deposited in any one of the privies its dissemination by the wind would be almost certain because the germ is not rapidly destroyed by drying.

WHAT IS THE SPECIFIC CAUSE OF TYPHOID FEVER?

Dr. George M. Kober of Washington, D. C., in a recent report on the subject, after giving different views of the specific cause, has said: "All scientific physicians agree, however, upon one point, viz., that typhoid fever is caused by an organized germ capable of reproducing itself within and without the body."*

Just here, however, is where we arrive at a point in the etiology where differences of opinion exist; for while a majority of the prominent bacteriologists conclude that the bacillus typhosus demonstrated in typhoid cadavers by Eberth in 1880, and obtained in pure cultures by Gaffky in 1884, is the sole and only cause of typhoid fever, there are those who regard this as to say the least "not proven." Thus the last edition of "Ptomains and Leucomains" by Vaughan and Novy says: "In this belief Vaughan refuses to concur, and claims that the

* Report of Health Officer of the District of Columbia, 1895, page 257.

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Eberth bacillus as found in the spleen after death is an involution form of any one of a number of germs which are found in certain waters. Vaughan claims that the typhoid bacillus can be detected in drinking water by the following characteristics: (1) They grow at 37°, while many of the non-pathogenic germs of water grow only at lower temperatures. (2) They are pathogenic to rats, guinea-pigs, mice and rabbits. (3) They do not coagulate milk. (4) When grown in milk or gelatin colored blue with litmus, the color is not altered."*

THE PATHOLOGY OF TYPHOID FEVER.

A recent writer has stated that the pathology of typhoid fever has long been known, but the etiology has only recently been discovered. In this paper I shall endeavor to omit so much of the pathology as has very long been known and devote all the time I am permitted to use to the consideration of a few points in pathology which are comparatively new. And, to my mind, there are a number of important facts in pathology which have not very long been known; facts which could not be fully appreciated until considerable progress had been made in the etiology of the disease. For instance, the significance of abscesses in various parts of the body could not be appreciated until the bacteriologists had investigated the pus in those abscesses and found there the apparent specific cause of typhoid fever. A new light is thrown on the pathology of typhoid fever by the knowledge that the specific germ has been found in the blood and in nearly every organ and tissue of the body. This supports the view that typhoid fever is a disease of general blood infection. New light is supplied by the knowledge that the life processes of the germs produce a poison, the effects of which, in various parts of the body, are important. Thus "Sanerelli's prolonged studies upon experimental typhoid fever lead him to maintain that the intestinal disturbances in this disease are due to the toxin and not to the local action of the typhoid bacteria."†

* Edition 1896, page 208.

† Jour. Amer. Med. Assoc., Vol. 23, Dec. 22, 1894; page 933.

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"Agro (Annales de Micrographie, vi., 1894) has discovered the very interesting fact that the mixture of the cultures of bacilli coli and bacillus typhi abdominalis has greater toxic power than a similar quantity of either in pure culture."*

"In 1889 Vaughan isolated from mixed cultures from typhoid stools a base forming crystalline salts and capable of inducing in cats and dogs a marked elevation of temperature accompanied by severe purging." †

In a paper read at the meeting of the American Medical Association at Baltimore, in 1895, William B. Noyes, M. D., of New York, after stating the proportions of *children* in each of numerous epidemics in Europe and in this country, says: "In conclusion, we would once more emphasize that typhoid in early infancy in a typical form is rare in this country, though not uncommon abroad. It is in a mild or abortive form that we much look for it here, if we wish to separate it from other intestinal or meningeal diseases that may appear."

Dr. Noyes says: "The pathologic changes in the infantile cases, while distinct, are much less severe than in adults. It is a very interesting fact that in a series of animal inoculations with typhoid bacilli by Sanerelli (*Annals de L'Institute Pasteur, 1892-1894*), the changes in the intestine and other viscera were almost identical with those we have just described in children. These experiments consisted of a series of inoculations of rabbits, guinea pigs, white mice and monkeys with pure cultures of the Eberth bacillus, and were followed by a second series of experiments of inoculations with sterilized filtered products of the Eberth bacillus. The results were similar in the two cases. Swollen hyperemic spleen, congested intestine, diarrhœal intestinal contents, infiltrated and congested Peyer's patches, red and hypertrophied solitary follicles. Hardened microscopic sections of the intestine showed a change in the epithelial lining especially, and detachment of masses of epithelial cells together, such as occurs in a poisoning by arsenic or other corrosive drugs. Enormous infiltration of Peyer's patches occurred, abundant accumulation of

* Jour. Amer. Med. Assoc., Vol. 23, Dec. 22, 1894; page 934-935.
† Ptomains and Leucomains, 1896, page 209.

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lymphoid cells in and around the follicles and invading the submucous spaces. This change was not a simple hyperthrophy of lymphatic plaques, but a condition just short of a beginning purulent infiltration. No typhoid bacilli could be found in these Peyer's patches in the animal, but enormous numbers were seen in the adjacent lymphatic glands and in the connective tissue of the mesentery. From these experiments, Sanerelli comes to the conclusion that typhoid fever produced in animals is by preference an infection of the lymphatic system, and the toxin produced by the Eberth bacillus causes the anatomic lesions. These changes occur in all mucous surfaces and we should *expect* to find in both animals and in man lesions in the mucous membrane of the mouth, larynx, bronchi and stomach, with resulting symptoms which occur very frequently. Typhoid fever can no more truly be called a disease of the intestine than small pox of the skin, though both have their characteristic lesions in those places." —*Jour. Amer. Med. Assoc., vol. 25, Sept. 28, 1895, p. 530-531.*

"Stern (*Volkmann's Sammlung Klinischer Vortage, No. 138*) has published another suggestive paper on typhoid." * * * "The question as to the presence of typhoid bacilli in the blood was tested in six cases with positive results in three, twice in blood from roseolæ and once in blood from a vein. In the negative cases the blood was examined only once in two of the three cases. In the third case, confirmed by autopsy, three examinations were negative. In the cases with positive results the number of colonies was always small, as has been found by other investigators. The bacilli were found between the ninth and twenty-fifth days of the disease. The question whether the blood from the spots or that from the veins is most favorable requires further investigation."*

OTITIS IN TYPHOID FEVER.

The hearing is often affected in typhoid fever. "Botkin states as the results of observation in twenty-six cases that he found in all but five an acute and bilateral inflammation of the outer ear."†

* Amer. Jour. Med. Sci., Vol. 111, March, 1896; page 349-350.
† Jour. Amer. Med. Assoc., April 5, 1896; page 694.

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PERI-ARTICULAR ABSCESS DUE TO THE TYPHOID BACILLUS.

"Swiezynsky (*Centralblatt fur Bakteriologie und Parasitenkunde*, Band XVI, No. 19, page 775) has reported the case of a man, 18 years old, with the following sequence of an attack of typhoid fever of considerable severity; Swelling and pain appeared in the right arm followed by redness, tenderness and fluctuation about the shoulder joint, although this itself was not involved. In the course of a little while an abscess formed beneath the right deltoid and an incision evacuated a quantity of pus mixed with blood." * * * "Bacteriologic investigation of the pus evacuated from the abscess about the joint disclosed the presence of typhoid bacilli exclusively."*

PYLEPHLEBITIS AND ABSCESS OF THE LIVER FOLLOWING TYPHOID FEVER.

"Lannois has recently described pylephlebitis and abscess of the liver following typhoid in which the bacillus of Eberth was present in the pus from the abscess, though not in pure culture."†

INTRAUTERINE INFECTION WITH TYPHOID.

"Freund and Levy (*Berliner Klinische Wochenschrift, 1895, No. 25*) report the case of a multigravida who was admitted to the hospital in the eighth day of typhoid, being five months pregnant. She progressed favorably until the fourth week, the temperature being but slightly elevated. Without apparent cause she expelled a living foetus which soon perished. Her temperature rose during labor, but fell immediately afterwards. The fœtus and placenta were received in sterile glass vessels and an examination made of the spleen, blood of the heart and placenta twenty minutes after birth. No gross lesions were found. Typhoid bacilli developed, however, after incubation." * * * They say: "The case is a remarkable demonstration of the direct passage of infection from mother to child without anatomical lesions."‡

SUPPURATIVE PAROTITIS CAUSED BY THE TYPHOID BACILLUS.

"To the list of suppurative processes complicating typhoid

* Amer. Jour. Med. Sci., Vol. 109, 1895, page 328.
† Amer. Jour. Med. Sci., Vol. 111, March, 1896, page 347.
‡ Amer. Jour. Medical Sci., Vol. 110, Oct., 1895; page 488-489.

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fever, in which the typhoid bacillus alone has been found as the cause of the abscess formation, Janowski has recently (in 1895) added a case of suppurative parotitis."*

"The patient, a young man, had been sick in the hospital seven weeks, during which time he had greatly emaciated, had had more or less fever, and toward the last had developed hemorrhagic nephritis and a tender enlargement of the right parotid gland. The diagnosis of typhoid fever was first made on the autopsy table, Peyer's patches showing distinct appearances of recently healed ulceration. The right parotid gland was found to be infiltrated with pus, which was in places collected in small abscesses. Cultures from this pus developed only the typhoid bacillus, whose identity was carefully proved with comparison of known cultures of the typhoid bacillus and of the *bacillus coli communis*."†

In a paper read at the meeting of the American Medical Association in 1889 Prof. Vaughan in speaking of the Eberth bacillus said: "Caffky and others found it always present in the mesenteric glands and spleen, often in the liver, and not so frequently in the kidney. In the intestine it has been found in the early stages in the swollen follicles and plaques and in the deeper layers before there is any necrosis; but with the advent of ulceration there is found secondary invasion. But in addition to these organs, the Eberth germ has been reported by Chantemesse and Vidal in the lungs of typhoid patients with bronchitis, broncho-pneumonia and pneumonia. The same observers report the germs in the brain, Curschmann in the spinal cord, Zenker and Hoffmann in the voluntary muscles and in the marrow of the bones, and Reher, Neuhauss, Chantemesse and Vidal in the placenta of typhoid patients. In twenty samples of blood taken from the finger during life of typhoid patients Meisels reports the finding of this germ in nineteen. Neuhauss examined the blood taken from the eruptive spots in typhoid fever with success. Maraglinao and others examined the blood taken from the spleen during life as a means of diagnosis." * *

* Centralblatt f. Bakt. u. Parasitenkunde. 1895, XVII, No. 22, 875.
† Am. Jour. Med. Sciences, October, 1895, page 501.

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* "Granting that these observers have not been mistaken in the nature of the germs which they have found, we must admit that the Eberth germ is widely distributed."*

In the same paper Dr. Vaughan says: "To sum up the evidence which we have upon this point we may say: (1) The Eberth germ is found invariably in the bodies of those dead from typhoid fever. (2) It has been isolated and grown in pure cultures. (3) All attempts to induce typhoid fever in the lower animals by inoculation with this germ have so far been without success. (4) Experiments show not only that the germs fail to multiply in the lower animals, but that when introduced by inoculation it soon died. * * * But the bacteriologist stops here and says: 'The lower animals do not have typhoid fever, and we must not conclude from the failure to induce this disease in them with Eberth's germ that this bacillus is not the true cause of typhoid fever.' 'If we could experiment upon man,' says he, 'I have no doubt that we could be successful.'"†

Because the chemical products of the Eberth bacillus had not been demonstrated to be capable of producing the characteristic symptoms and lesions of typhoid fever, Dr. Vaughan then said: "We certainly cannot say that the Eberth germ has been demonstrated to be the true and sufficient cause of typhoid fever."‡

But in that same address Dr. Vaughan gave details of the inoculation of several dogs with a pure culture of germs resembling the Eberth bacillus, and in several instances the pathological results resembled those of typhoid fever in man. Dr. Vaughan said: "Notwithstanding the marked resemblance of our cultures to those of the Eberth germ, I must conclude from the effects obtained that we either had a wholly different organism or an impure culture."§ Other investigators believe that typhoid fever is due to a mixed infection.

* Jour. Amer. Med. Assoc., vol. 13, 1889, p. 831-832.
† Jour. Amer. Med. Assoc., Vol. 13, 1889, page 832-33.
‡ Jour. Amer. Med. Assoc., Dec. 14, 1889, page 833.
§ Jour. Amer. Med. Assoc., Dec. 14, 1889, page 834.

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TYPHOID BACILLI IN THE URINE; TYPHOID FEVER A GENERAL BLOOD INFECTION.

One of the most important ideas, however, is the view set forth by Drs. Wright and Semple, professor and assistant professor of pathology in the British Army Medical School at Netley, based partly upon their experiments on the infectivity of the urine in typhoid fever, which had been previously pointed out by Sanerelli working under the auspices of Metschnikoff, but on which fact Drs. Wright and Semple build up still further Sanerelli's new theory on the pathology of typhoid fever. Drs. Wright and Semple found the typhoid bacillus in the urine of six out of seven cases of typhoid fever. "In some cases the urine, even before incubation, is absolutely turbid with typhoid bacilli."*

They say:† "The theory of typhoid fever, which is currently held and currently acted upon, is the theory that typhoid fever is an 'intoxication process' much in the same way as cholera is an 'intoxication process.' In other words it is assumed that the typhoid bacillus vegetates in the intestine, that it effects a lodgment in the intestinal walls and that the poisons which are elaborated by the bacilli are absorbed into the system from the intestine. The systemic disturbance which characterizes typhoid fever is attributed to this absorption. This theory of typhoid fever is brought into harmony with notorious bacteriological facts by the assumption that there is a certain leakage of typhoid bacilli from the intestine into the system. This leakage theory is supposed to dispose of the fact that typhoid bacilli are invariably found in the spleen and mesenteric glands of patients suffering from typhoid fever. Now, this 'intoxication' theory of typhoid fever was originally based upon the fact that a bacillus which is morphologically indistinguishable from the typhoid bacillus is found in large quantities in the stools in every case of typhoid fever. Subsequent investigations, however, showed that this bacillus which predominates in the intestinal floor in cases of typhoid fever can be distinguished from the true ty-

* London Lancet, July-Dec., 1895, page 199.
† London Lancet, July-Dec., 1895, page 196-8.

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phoid fever bacillus by a series of chemical differences. The bacillus which is found in such large quantities in the stools of patients suffering from typhoid fever is therefore not the true typhoid bacillus. It is the bacillus which is known by the name of 'bacillus coli communis.' Recent research has therefore been directed to the question as to whether, in addition to the bacillus coli communis, the true typhoid fever bacillus is not also to be found in the stools of patients suffering from typhoid fever. The following are the results of careful examination of this question: The true typhoid fever bacillus was detected in the stools of only four of the twelve cases of typhoid fever which were studied by Wathelet. In the case of these four patients the typhoid fever bacillus was detected only four times in a total of twenty-four examinations, and even on these four occasions the true typhoid fever bacillus was outnumbered by the bacillus coli communis in the proportion of about three to one. In the case of the other eight cases of typhoid fever the bacillus appeared to be absent from the stools throughout the whole course of the disease. Wathelet has further shown that if the bacillus typhosus and the bacillus coli communis are implanted into one and the same tube of nutrient broth the bacillus coli communis will outgrow and kill off the typhoid fever bacillus even when at the outset an enormous numerical preponderance is given to the typhoid bacillus over the bacillus coli communis. Again, Wathelet has shown that whereas the bacillus coli communis will flourish in a nutrient medium containing the toxins elaborated by the typhoid fever bacillus, the typhoid fever bacillus will not grow in a nutrient medium containing the toxins elaborated by the bacillus coli communis. If this holds true in every case, and it has seemed to hold true in the few test experiments we have performed, we are evidently in a position to infer on *a priori* grounds that typhoid fever bacilli will be absent from the intestine whenever, as in the case of typhoid fever, we have to deal with the multiplication of the bacillus coli communis in the intestine. Both *a priori* reasons and actual observations therefore point to the absence of typhoid fever bacilli from the intestinal tract,

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and therefore the symptoms of typhoid fever cannot be interpreted as a result of the absorption of typhoid toxins from the intestine. They seem to ignore the poison of the bacillus coli communis. We are therefore compelled to seek for a new theory for typhoid fever, and if typhoid fever is not the result of an intestinal intoxication process we must evidently seek to explain it as a result of blood infection. This is, if we understand it aright, the theory of typhoid fever which has recently been put forward by Sanerelli, under the auspices of Metchnikoff. We have to see whether typhoid fever can be explained upon the basis of this theory. And evidently the first thing to be explained in the case of typhoid fever is the turgidity of the spleen and the presence of typhoid bacilli in the splenic tissue. Now, this turgidity of the spleen and this presence of micro-organisms in the splenic tissue is an invariable accompaniment of every septicæmic process. We find it in the case of such blood infections as anthrax in cattle and spirillum fever and malaria in man. And we have the explanation of this phenomenon in the experiments of Werigo which show that the introduction of any foreign particulate matter into the blood invariably results in a deposition of that particulate matter in the spleen (and other internal organs), and in an aggregation of polynuclear white blood-corpuscles around the foreign particulate matter, and finally in a process of phagocytosis. Everybody who has a rabbit and a little carmine, or any bacterial culture at his disposal, can readily verify these facts for himself. The enlarged spleen and the presence of bacteria there are thus quite in harmony with the theory of a blood infection in typhoid fever. The fact that the white blood-corpuscles are diminished* in the circulating blood in typhoid fever is also in harmony with this explanation. We have further in connection with typhoid fever to account for the eruption of pink spots on the skin. These

* "It may be pointed out incidentally here that the paucity of white blood-corpuscles in the blood probably stands in some connection with the fact that epistaxis is of frequent occurrence in typhoid fever. This epistaxis, if we may judge from a great many observations which one of us has made of the condition of the blood-coagulability, is almost certainly an indication of a diminished blood-coagulability such as can be obtained by the injection of particulate matter into the blood. In an experiment made by one of us the coagulation time of a dog's blood in the standard capillary tube was reduced from three minutes to fifteen minutes by an intra-vascular injection of carmine particles.

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were inexplicable on the intoxication theory of typhoid fever. They are, however, of the easiest explanation if we make the assumption that typhoid fever is characterized by a blood infection, for here, as in other cases, we may instance the skin eruption in the case of human glanders; the spots evidently correspond to lodgments of the bacteria in the capiliaries of the skin. This interpretation of the skin eruption has been borne out in the case of typhoid fever just as it has in the case of glanders by the fact that the specific bacteria have been cultivated from the spots. We have been able to confirm this observation in one of the cases of typhoid fever reported below.

"The intestinal symptoms of typhoid fever are of somewhat uncertain explanation. Possibly they are to be explained as Sanerelli explains them, as a specific effect of the typhoid fever toxin on the adenoid tissue of the intestine, and of the subsequent invasion of that tissue by the bacillus coli communis." * * * "The occasional presence of typhoid fever bacilli in the intestine is easily accounted for by assuming that a certain number of the typhoid fever bacilli escape through the intestinal wall into the intestinal contents.

"In addition to the points which have just been touched upon, we may refer to other points which, although they have been comparatively neglected, throw an important light upon the pathological processes which are associated with typhoid fever. The phenomena in point are the presence of so-called 'miliary lymphomata' in the kidney and the presence of the typhoid bacilli in the urine. We have no recent opportunity of studying the miliary lymphomata which are described as occurring in typhoid fever, but they are probably quite comparable to the miliary lymphomata which are described as occurring in the spleen in cases of spirillum fever, and to the miliary lymphomata which are produced by the injection of fairly resistent bacteria, such as tubercle bacteria into the blood. Such lymphomata correspond to aggregations of white blood corpuscles around bacteria which have lodged in the capillaries. They are a repetition in small of the aggregations of phagocytic white blood corpuscles which are seen

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on a far larger scale in the spleen. Lastly, in regard to the presence of typhoid fever bacilli in the urine. Even if typhoid fever bacilli were found in the urine only in occasional cases their presence there would be a strong argument in favor of the theory of a blood infection and against the intestinal intoxication theory. But the argument in favor of the septicæmic theory of typhoid fever becomes irresistable if it can be shown that the typhoid fever bacilli are almost always found in the urine in cases of typhoid fever. With a view of ascertaining this point we have examined the urine in the following typical cases of typhoid fever."

The Journal of the American Medical Association summarizes the conclusions of Drs. Wright and Semple as follows :*

"1. It is true that the typhoid bacilli are present in the urine of patients suffering from typhoid fever, and if, as we shall see, typhoid bacilli are generally absent from the feces, it will be evident that it is the urine, and not the feces, of patients suffering from typhoid fever which is responsible for the spread of typhoid infection.

"2. If typhoid bacilli are constantly present in the urine of typhoid patients it may be possible to diagnose the presence or absence of typhoid fever by undertaking a bacteriologic examination of the urine.

"3. If it is true that typhoid bacilli are constantly present in the urine in cases of typhoid fever while they are generally absent from the feces, it will be evident that the conception of typhoid fever upon which the ordinary clinician proceeds is an entirely erroneous one.

"4. The working hypothesis regarding this fever in the minds of medical men generally, favoring as it does the notion that this fever is an intestinal intoxication process, should be revised, and substituted for it one that will have regard to the wide range of pathologic appearances, some of which at least fit in well with a hypothesis of blood infection, such as malarial fever in man and anthrax in cattle."

While most of the views expressed by Drs. Wright and Semple seem to me to accord with the facts, a few important

* Jour. Amer. Med. Assoc., Oct. 5, 1895, p. 589.

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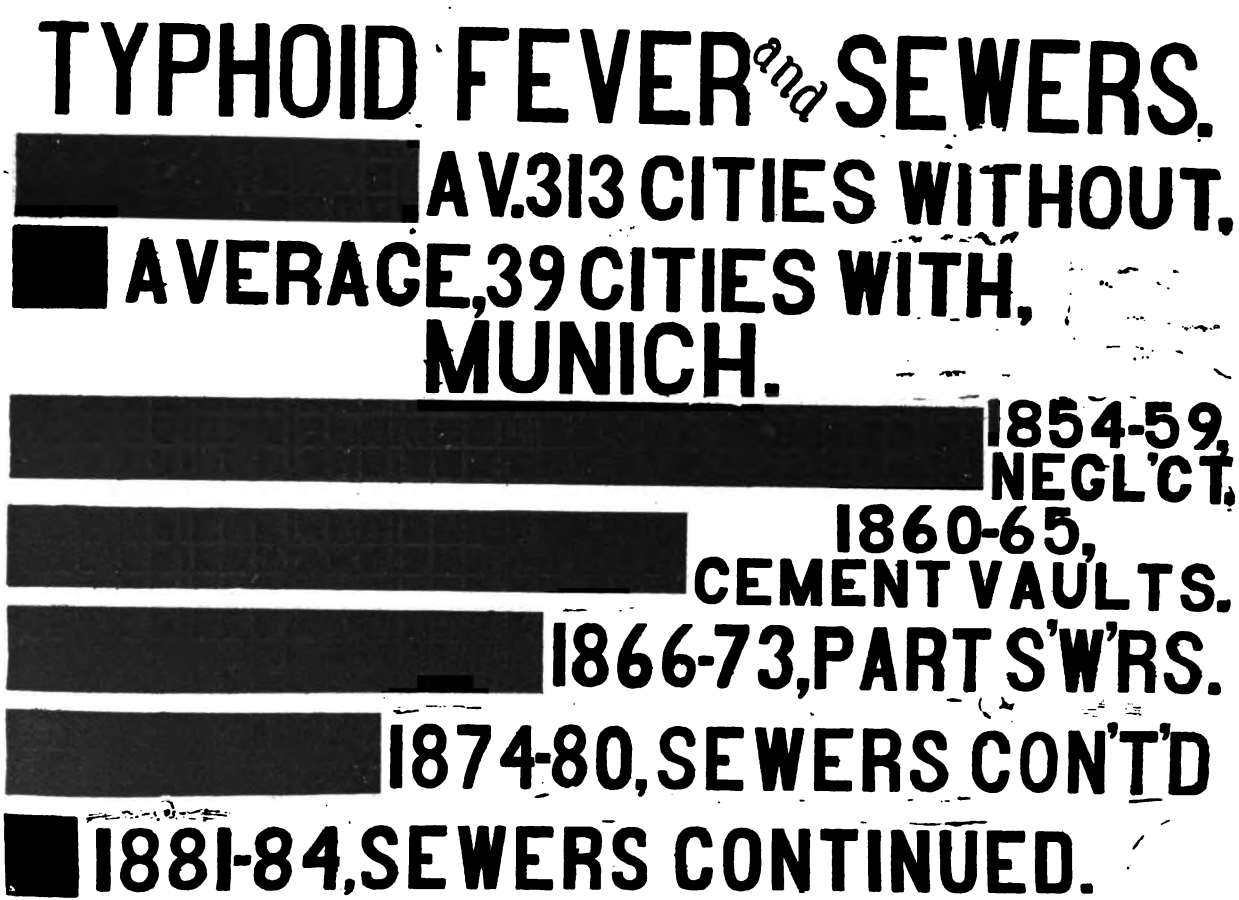

DIAGRAMS ILLUSTRATING DR. BAKER'S PAPER ON THE ETIOLOGY AND PATHOLOGY OF TYPHOID FEVER.

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CHART I.— DEATHS from TYPHOID FEVER to each 10,000 INHABITANTS before, during, and since the INTRODUCTION of SEWERAGE and WATER-SUPPLY.

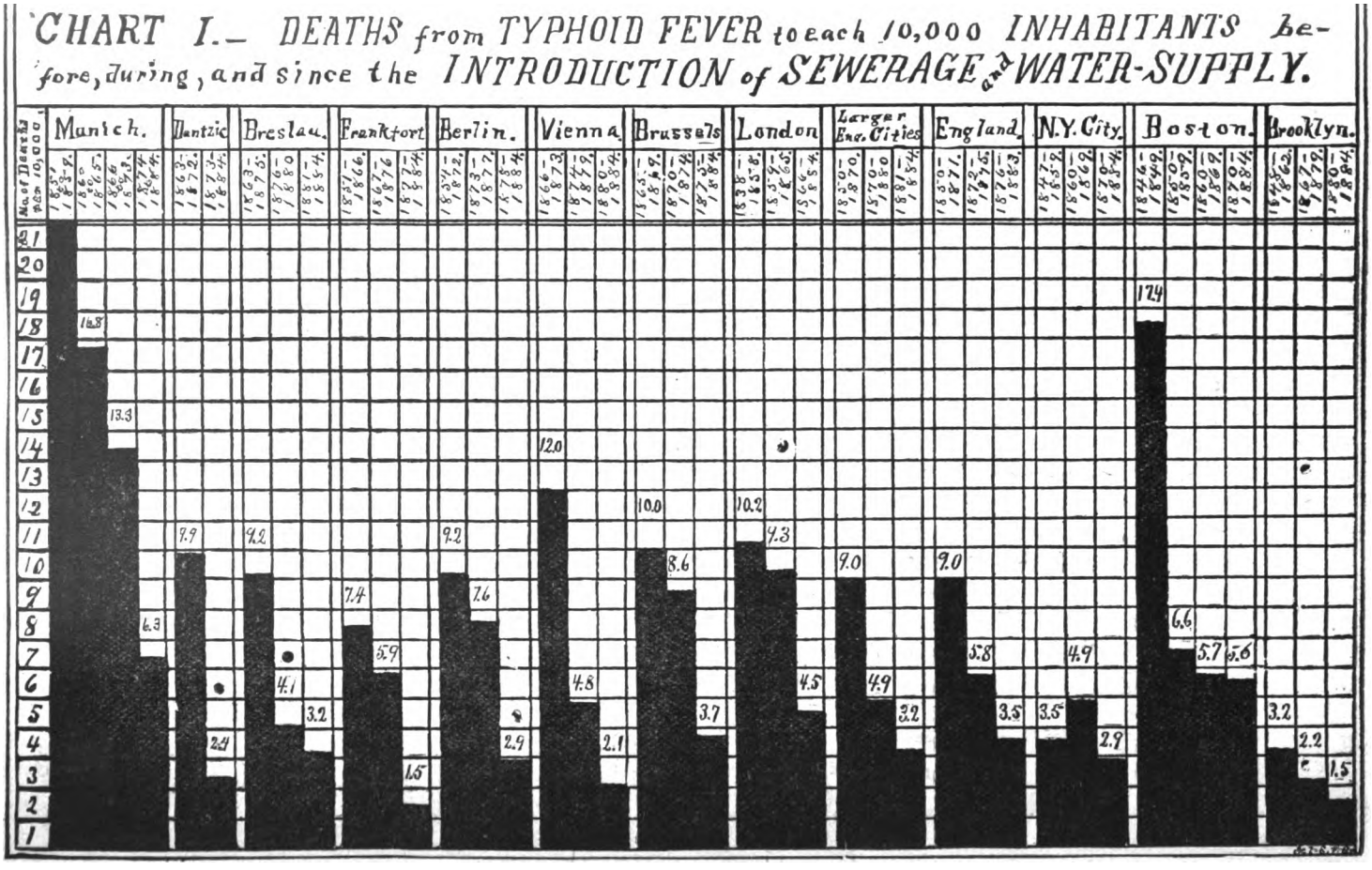

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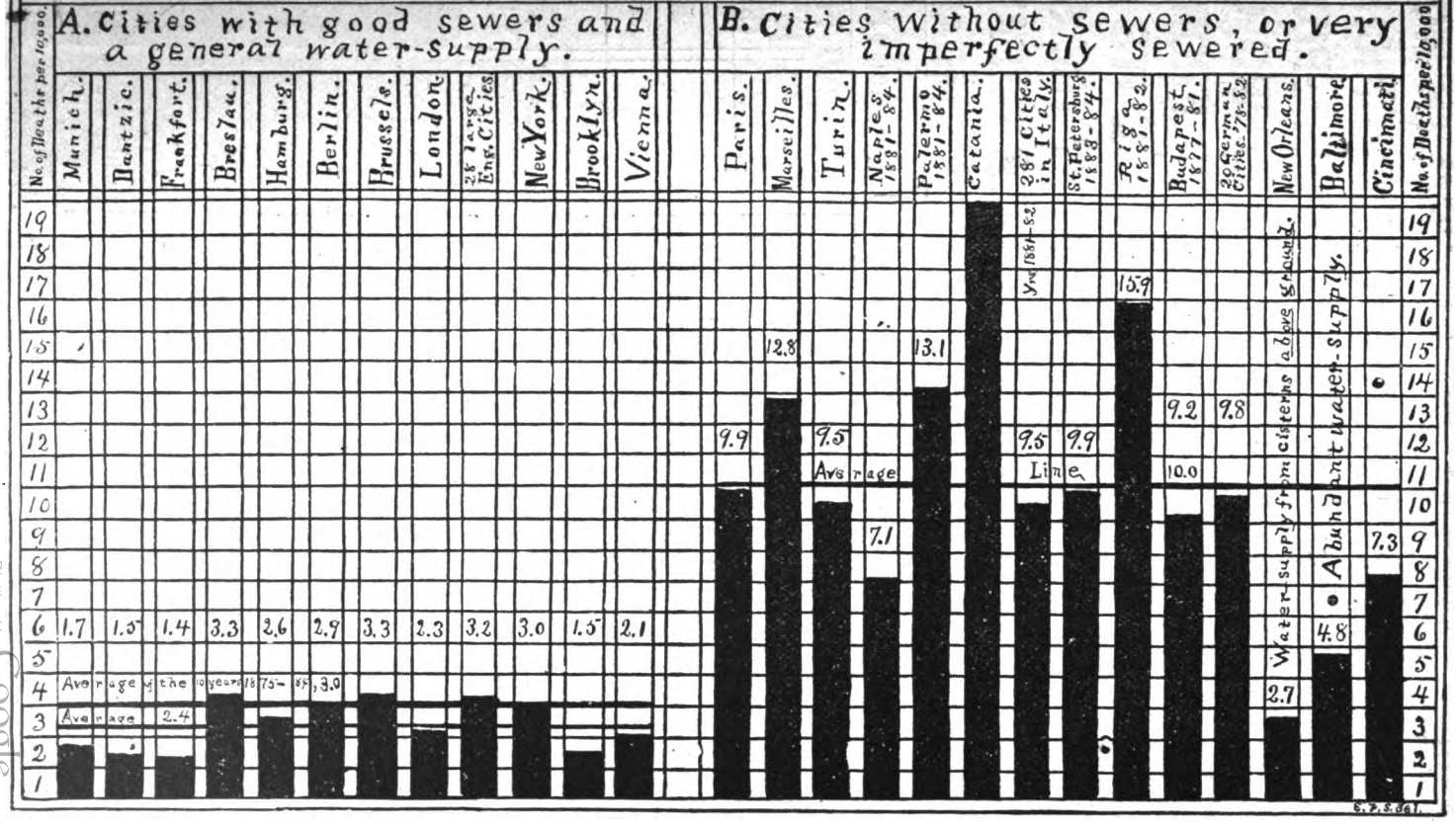
CHART II.— DEATHS from TYPHOID FEVER to each 10,000 INHABITANTS in SEWERED and UN-SEWERED CITIES. Av. of 5 yrs., 1880-84,— unless otherwise stated.



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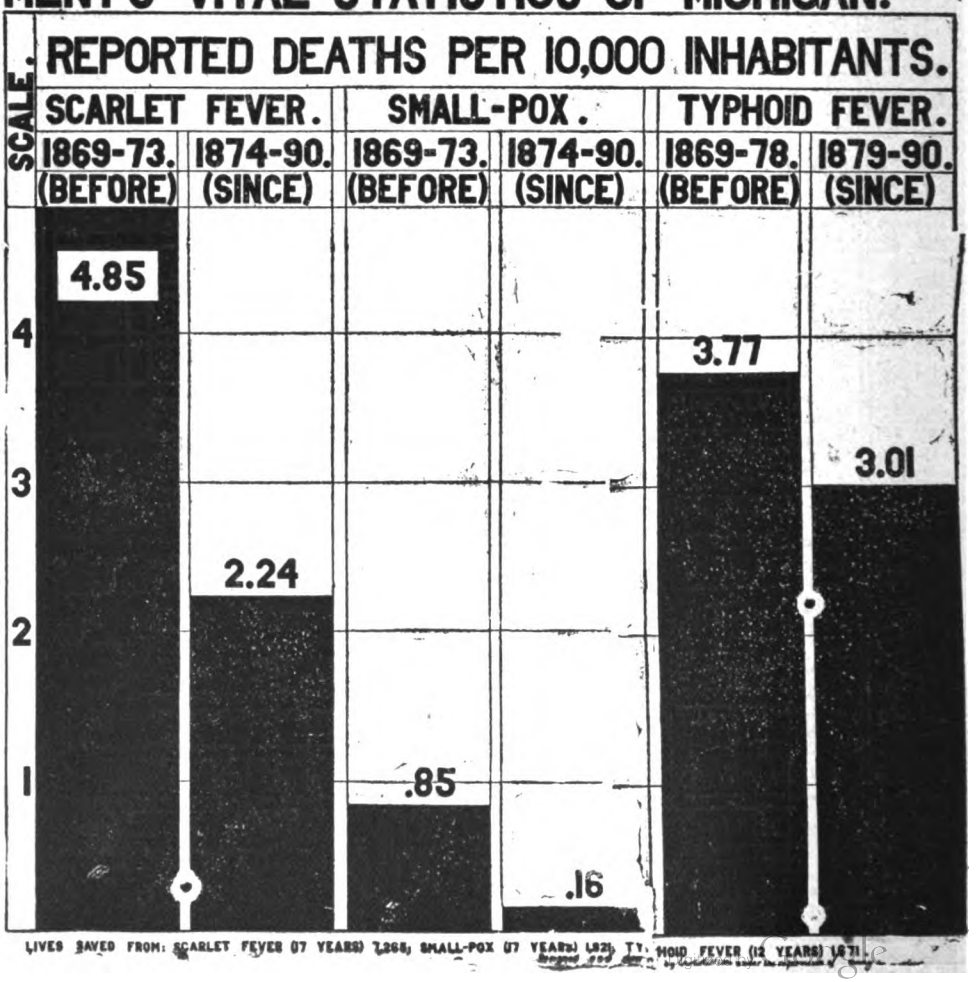
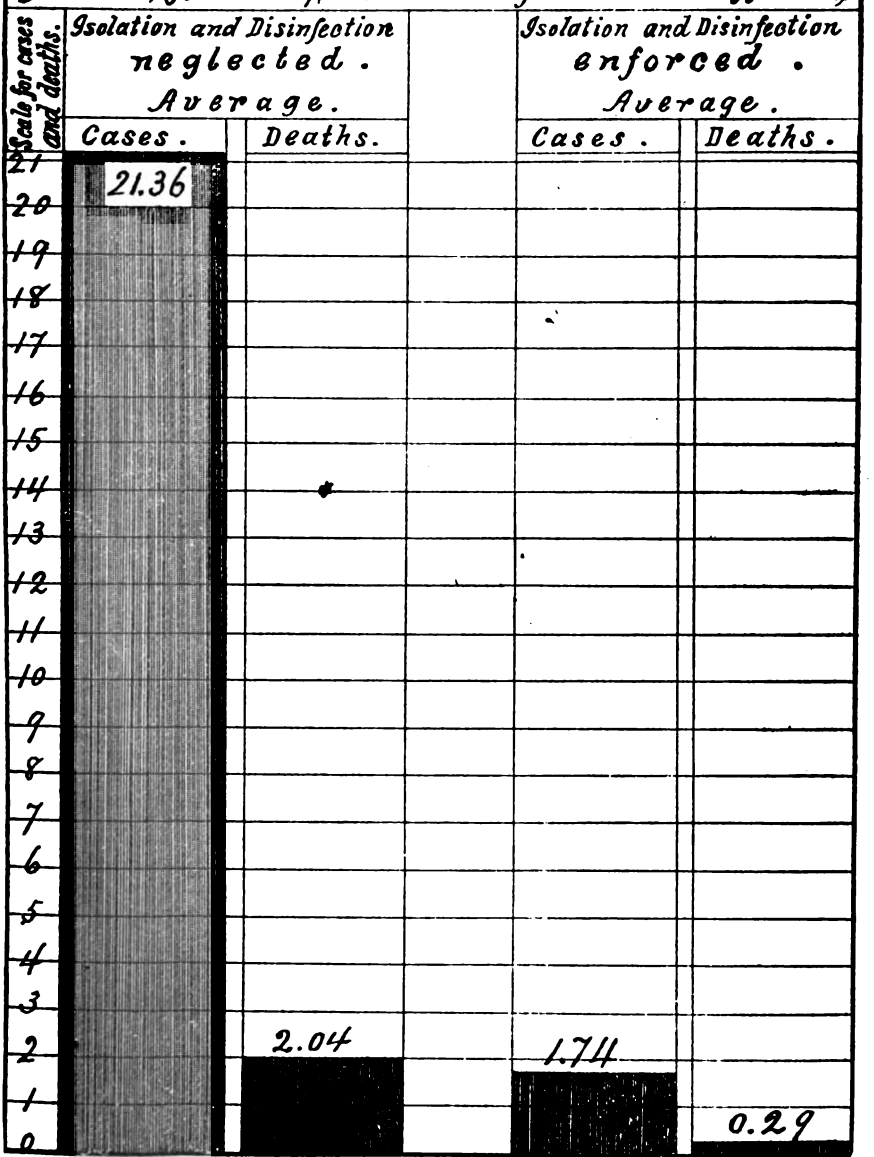
LIVES SAVED BY PUBLIC-HEALTH WORK. COMPARISON OF DEATH-RATES IN MICHIGAN FROM SCARLET FEVER AND SMALL-POX BEFORE AND SINCE THE STATE BOARD OF HEALTH WAS ESTABLISHED AND FROM TYPHOID FEVER BEFORE AND SINCE ITS RESTRICTION WAS UNDERTAKEN BY THE STATE BOARD. COMPILED FROM STATE DEPARTMENT'S "VITAL STATISTICS" OF MICHIGAN.



Typhoid Fever in Michigan in 1891:- Exhibiting the Average numbers of cases and deaths per outbreak:- in all outbreaks in which Isolation and Disinfection were both neglected, and in all outbreaks in which both were enforced*. (Compiled in the office of the Secretary of the State Board of Health, from reports made by local health officers.)



*Including the disinfection of the bowel discharges of the patients.

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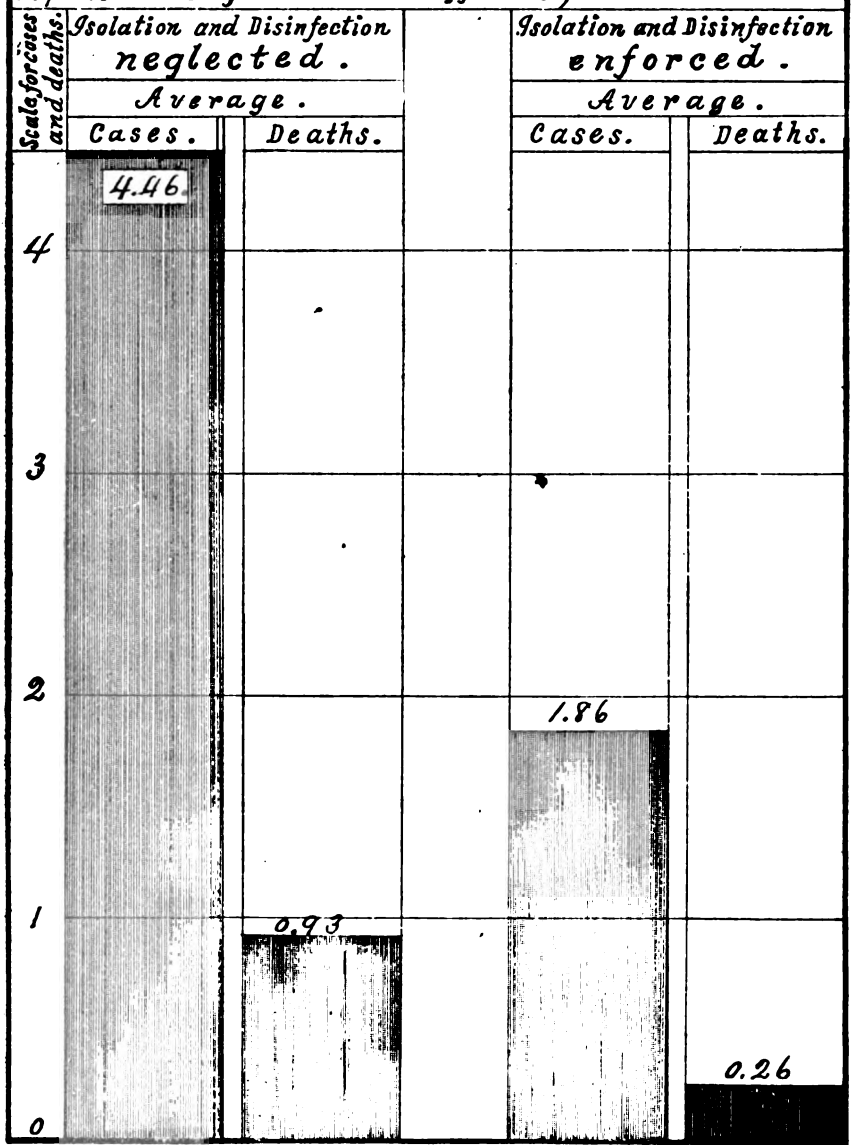
Typhoid Fever in Michigan in 1892:- Exhibiting the average numbers of cases and deaths per outbreak:- in all outbreaks in which Isolation and Disinfection were both neglected; and in all outbreaks in which both were enforced.(Compiled in the office of the Secretary of the State Board of Health, from reports made by local health officers.)*



* *Including the disinfection of the bowel discharges of the patients.*

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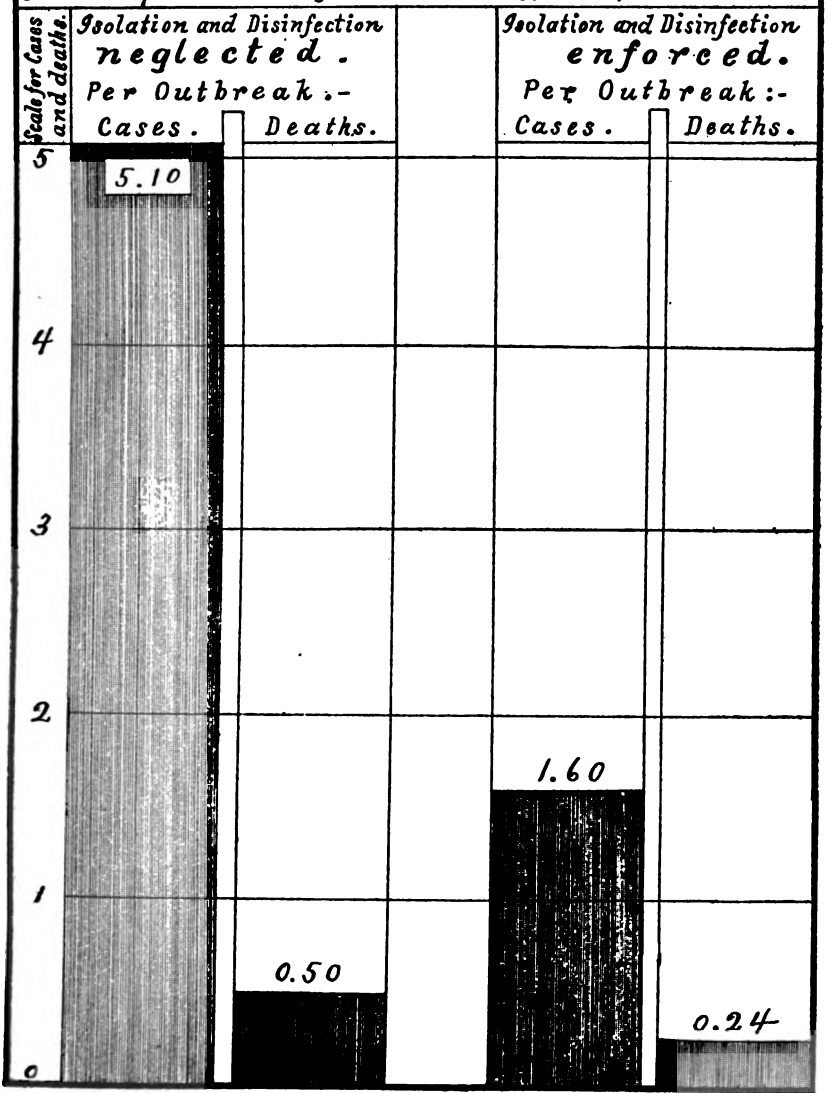
Typhoid Fever in Michigan in 1893:- Exhibiting the average numbers of cases and deaths per outbreak:- in all outbreaks in which Isolation and Disinfection were both Neglected; and in all outbreaks in which both were Enforced.* (Compiled in the office of the Secretary of the State Board of Health, from reports made by local Health Officers.)



*Including the disinfection of the bowel discharges of the patients.

[PLATE 780.]

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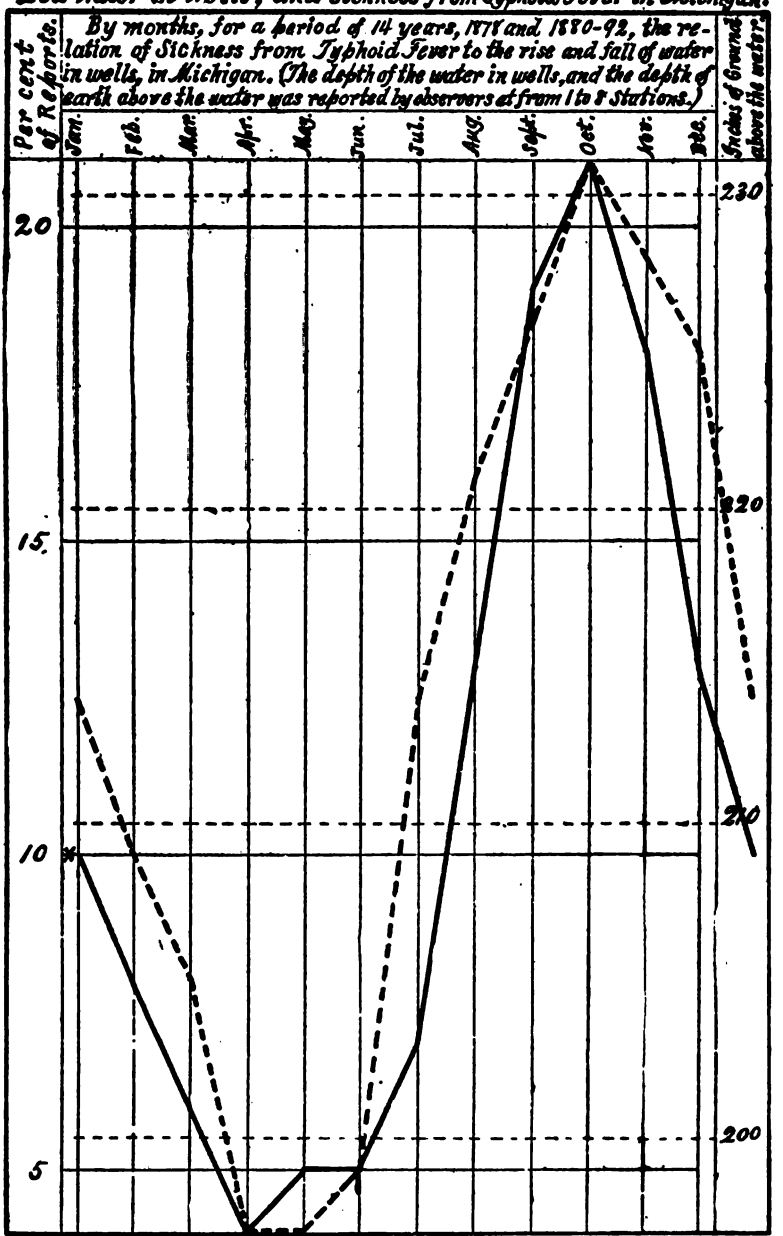
Low Water in Wells, and Sickness from Typhoid Fever in Michigan.



* Indicating what per cent of all reports received stated the presence of Typhoid Fever then under the observation of the physicians reporting.

The danger from typhoid fever is greatest in October, when the water in wells is lowest, and least in April, when the water in wells is highest.

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discrepances are noticeable: (1.) From several lines of evidence it is apparent that the infection of the body by typhoid fever is primarily by way of the alimentary canal, therefore the "assumption that there is a certain leakage of typhoid bacilli from the intestine into the system" appears to be true in fact. This, however, does not negative their assumption that later there may be a "leakage" from the general circulation and the tissues into the intestine.

(2.) Inasmuch as the common bacillus of the colon is increased in typhoid fever and in its life processes produces a poison which when mixed with the product of the typhoid bacillus has increased toxic power, * intestinal antiseptics in typhoid fever may yet be important, notwithstanding the contrary suggestion of Drs. Wright and Semple, so that although we may come to rely upon the poison of the bacillus coli communis to destroy the typhoid germs instead of substituting for the intestinal intoxication theory, there may be added to that doctrine the idea of general blood and systemic infection which seems to be well established by the independent observations of a very great number of investigators.

* Agret Anuales de Micrographic, vi. 1894; Jour. Amer. Med. Assoc., Vol. 23, pp. 934-935, Dec. 22, 1894.

NOTE—The appendix which accompanies this article, and which contains a tabulated account of one hundred and forty-seven epidemics of typhoid fever traced to milk infection, is omitted, after consultation with Dr. Baker, on account of the extra expense of printing forty pages of such matter. The facts relative to these outbreaks are collected from several sources. The first one hundred and thirty-eight are taken from a paper by S. C. Busey, M. D., and G. M. Kober, M. D., in the Annual Report of the Health Officer of the District of Columbia for the year 1895, the first fifty of which had been previously collected by Ernest Hart. The next eighty-eight were collected by Drs. Busey and Kober, and the remaining nine were collected by Henry B. Baker, M. D., secretary of the Michigan State Board of Health for this paper on the Etiology and Pathology of Typhoid Fever. The appendix will probably be published in full by the Michigan State Board of Health.

THE EDITOR.

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SYMPTOMS AND DIAGNOSIS OF TYPHOID FEVER.

HUGH McCOLL, M. D.
Lapeer.

The early symptoms of typhoid fever are very variable and cover a wide field; indeed no disease shows a wider range and variety of forms and symptoms in the early stages. Typhoid fever today is the essential fever of Michigan, and is growing in prevalence in the rural districts as well as in towns not well supplied with pure water.

The onset of the malady is insidious, commencing with ill-defined malaria and general discomfort. If we examine the patient carefully we will find that fever is almost a constant symptom; this fever presents a constant increase each day during the first week, with an evening exacerbation of 1° to 1½°. At the beginning of the second week fever becomes more constant, exacerbations less marked; in the third week there is a gradual decrease till it reaches the normal in the fourth week. We however find all varities and shades, from cases with very little or no fever to those presenting irregular types of fever when complicated with malaria. In the second week the fever may rise to 105° or 106°.

We may have constipation during the first week or there may be a number of more or less loose stools in the day, and it may not be till the second week that the characteristic ochre colored stools make their appearance with more or less tympanites and gurgling in the right iliac region. The stools may number as high as a dozen or more in the twenty four hours, and during the third week hemorrhages may occur, although occasionally we have hemorrhages as early as the first week. The tongue is large and flabby,

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covered with a heavy muddy coat during the first week. In the second week the tongue becomes red and glazed, gradually growing brownish, which clears off in the third week leaving a smooth, red and slippery tongue. There is a characteristic typhoid face, listless appearance of eyes, tendency to drowsiness and severe headache. Where the fever is fully developed patient lies on his back, slowly slipping down in the bed and in a placid sleep unless we have active delirium. The emaciation is sometimes very rapid where the delirium is high, occassionally reaching one to one and one-half per cent of loss in twenty four hours.

The characteristic eruption should be looked for closely, as upon it often depends the certainty of diagnosis. The lenticular, rose colored eruption makes its appearance as early as the sixth day in some cases but not usually till the eighth or ninth day. Some cases are entirely devoid of eruption where the autopsy shows most conclusively that death was caused by typhoid fever

In the mild cases the mind may be clear throughout the disease. Usually early in the disease drowsiness sets in and the characteristic facial expression with half closed eyes which are opened slowly and slowly closed after being aroused. Headache is a persistent symptom. Delirium from mild muttering to violent mania may be present. Epistaxis is frequent in the first week. Tremulousness and weakness of muscles and in graver cases subsultus and picking at the bed clothes are present. Pulse is increased in frequency from 100 to 130 in ordinary cases. Blood changes are few as far as research has gone. Bronchitis is always present in varying degrees of severity.

Rapid breathing caused by nervous influences, as well as by degree of tympanitis, may rise to 36 to 40 in the minute.

DIAGNOSIS: We should be governed in case of doubt where fever is continuous by the fact that it is more likely to be typhoid than any other if we have the characteristic temperature during the first week. After this first week in typical cases the diagnosis is easy.

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We had a type of fever in this state twenty years ago recurring every fall with absolute regularity, running a course of two to three weeks, the outset being sudden with a pronounced chill and clear remission of fever during the first week, diarrhœa during the second week and finally terminating as a distinct intermittent fever. I never discovered any rose colored spots in these cases nor was hemorrhage encountered. We called these cases continued fever or typho-malarial after Woodward. We do not see these cases any more, but see plenty of typical typhoid fever cases.

We have to diagnose typhoid fever from some slow developing pneumonias and from some forms of cerebro-spinal fever. Typhus fever is so rare here that we have little knowledge of it, but its suddenness of attack and the dark colored spots which make their appearance on the third or fourth day with the characteristic odor will enable us to differentiate between the two polaries.

Some forms of tuberculosis may be mistaken for typhoid fever. I saw a case recently where the early symptoms pointed strongly to a moderately mild type of typhoid fever, but after an illness of three or four months death resulted and an autopsy showed a tuberculous enteritis and that death resulted from tuberculous meningitis. Chronic circumscribed appendicitis may be mistaken for typhoid fever, and I have seen a case of abscess of the kidney, which had also been mistaken in the same way. When the bacillus of typhoid fever was discovered it was thought that an early diagnosis could easily be made, but no method yet presented is sufficiently simple or certain to enable anyone who has not a well equipped laboratory to make a satisfactory diagnosis with the microscope. Elsner's method is the simplest, and if it proves as satisfactory as indications show so far, it will become of use in connection with hospital practice with a fully equipped laboratory and an expert bacteriologist; but for the ordinary practitioner who has not any of these advantages it will be found that the diagnosis must be made as heretofore by the careful study of all the symptoms and, ever watchful, excluding any other forms which might be mistaken for typhoid fever.

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TREATMENT OF TYPHOID FEVER.

GEORGE DUFFIELD, M. D.
Detroit.

In discussing the treatment of typhoid fever I will first call your attention to the various methods that are in use in private and hospital practice before speaking of the methods I employ in treating the malady.

First of all, the Brandt method, the cold plunge baths preferred by the German school, is never an easy therapeutic measure to carry out, and frequently it proves impracticable because of its laboriousness, tiring out the nurses and attendants, to say nothing of the exhaustion, chills, cyanosis and great nervous shock it produces upon the patient. The reduction of the fever by this method is never for a long period and never more than one or two degrees; often before the patient has recovered from the shock of the bath the temperature has risen to 103° and the bath must be repeated. Plunge baths do not act in any way toward lessening the virulence of the typhoid poison. What effect has cold upon the surface of the body? It abstracts heat from the surface, but it does more; the blood is crowded into the internal organs, and the intestines and mesentery are filled to a degree of marked congestion, making the tissues softer by the exudation of blood serum, so making a richer culture medium for the growth of the Eberth bacillus. These frequent congestions that are produced by the cold plunge baths must have a tendency to prolong the attack. In comparison with the modern methods I consider the Brandt method of bathing obsolete with possibly one exception, namely, in case of continued hyperpyrexia. Another dangerous complication of this

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method is perforation. Next the antipyretic method should be inquired into. The coal tar products are strongly recommended by various authors as "safe and reliable." Antipyrin, acetanilid and phenacetin have all been used—but all these medicines, even in small doses, produce great depression and weakness of the heart, causing the lips to become blue, and are accompanied by cold and exhausting sweats. These medicines destroy the power of the red blood corpuscle to carry oxygen. The longer these drugs are used the more susceptible are the patients to their depressing action and the less strength have they to combat the continued fever.

Sponge baths are very useful and I heartily recommend them in conditions to be spoken of hereafter.

The medical profession was slow in introducing antiseptics into the body for the purpose of producing an aseptic condition of the bowels. The salicylates were the first drugs used to produce this condition, but they proved to be too irritating to be long continued.

Bismuth subnitrate was combined with salicylate of soda and was a step in the right direction, but whenever the salicylate was given in tablet or powder it always irritated the mucous membrane. Then came salol or phenylic ether of salicylic acid as it really is, which is a combination of salicylic acid and phenol; when administered internally it is decomposed and yields salicylic and carbolic acids in nascent forms. Though it was an excellent antipyretic and antiseptic it fell into disuse because of the acid formation which acted upon the blood corpuscles similarly to the coal tar products; but salol is less toxic than salicylic acid or phenol.

There is no need of enumerating the long list of medecines which are extolled as specifics in the treatment of that disease, but the evolution of one drug is of especial interest, *wood creasote*, producing first guaiacol and then the more potent but non-toxic carbonate of guaiacol.

We have all been interested in the reports of typhoid fever cases by Dr. J. E. Woodbridge and the treatment he has followed.

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Let me call your attention to the drugs that he recommends with a short history of their physicological action :

Guaiacol carbonate is a fine crystalline powder devoid of taste or smell. It causes no irritation of the gastro-intestinal mucous membrane and is decomposed in the intestines into guaiacol and carbonic acid gas. In typhoid fever with dry tongue it produces a moistening of the tongue and improves the character of the stools by acting as a disinfectant in the bowels.

Podophyllum is a slow cathartic and in minute doses a laxative which acts upon the liver and intestinal glands, increasing their secretion. Neuberger concludes, after a series of experiments, that it acts simply as an irritant, exciting catharsis in its elimination by the intestinal glands.

The physiological action of *calomel* is well known. It effects principally the excretory glands in the lower part of the small intestine and the upper part of the colon. It is supposed that calomel is changed by the action of the hydrochloric acid of the stomach into the corrosive chloride, when it acts as an hepatic stimulant and cholagogue. Calomel acts also as a stimulant to the kidneys, and is useful in increasing the diuretic action of such drugs as squill and digitalis. It has an antiseptic action in the intestines, retarding decomposition, which power it retains in the presence of fecal matter and which accounts for the beneficial action of this drug in intestinal diseases due to micro-organisms. It is claimed (Langlois) that colomel limits the absorptive activity of the intestinal wall.

Guaiacol is a powerful antipyretic (Friedenwald and Haylen) when locally applied, and is readily absorbed by the skin. It should be mixed with equal parts of glycerine and pure olive oil and painted on the skin over an area not to exceed twenty square inches, this to be covered with an impermeable dressing.

Menthol, a crystalline solid with a sharp and pungent taste, has decided germicidal properties and is recommended as an intestinal antiseptic, though it is more frequently used as a topical remedy.

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Eucalyptol excites the flow of saliva, produces a sense of warmth in the stomach, and acts as a carminative and antiseptic. The gastric and intestinal juices are increased by it. It is well borne by the stomach and is decomposed in the intestine into hydrochloric acid. The excretion of urea is augmented and the action of the heart increased; eucalyptol is also an efficient antiseptic, minute quantities preventing putrefaction, though not checking the action of the digestive ferments.

Thymol is a valuable antiseptic. It is less powerful than carbolic acid, but is less poisonous and much less irritating. It is a powerful disinfectant and at the same time lowers arterial tension, lessens reflex action, and reduces temperature.

The first action of these remedies is to cause a flow of bile into the intestines, which emulsifies neutral fats, promotes osmosis, excites contraction of the muscular coats of the intestine, and prevent putrefactive decomposition of the intestinal contents (Langlois).

During the treatment the stools smell quite strongly of the antiseptics used in the medication, showing that the whole intestinal tract has been washed with a satisfactory antiseptic.

Three formulas are employed. The first consists of:

NO. 1.

Podophyllum resin.....1-960 grain.
Mercurous chloride, mild.....1-16 grain.
Guaiacol carbonate.....1-16 grain.
Menthol .....1-16 grain.
Eucalyptol .....q. s.

And should be given every fifteen minutes during the first twenty-four hours, and every half hour or hour during the second twenty-four, until not less than five or six free evacuations of the bowels are secured during each of two consecutive days.

On the third or fourth day of treatment the following tablet is to be given at intervals of one or two hours:

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NO. 2.

Podophyllum resin .....1-960 grain.
Mercurous chloride, mild.....1-16 grain.
Guaiacol carbonate.....1-4 grain.
Menthol.....1-16 grain.
Thymol .....1-16 grain.
Eucalyptol .....q s.

This formula, and also formula No. 1, should be given as freely as possible at first, then gradually reducing the size and frequency of the doses, the object being to so regulate them as to allow the movements of the bowels to become less frequent until the temperature has dropped to normal, when the movements shall have been reduced to one or two each day. Should symptoms of ptyalism (a wholly unnecessary complication) supervene, the tablets should be promptly discontinued for a day or two, and if necessary sodium or potassium chlorate given, returning as soon as possible to formulas Nos. 1 and 2. About the fourth or fifth day of treatment the soft elastic capsules should be commenced:

NO. 3.

Guaiacol carbonate.....3 grains.
Thymol.....1 grain.
Menthol .....½ grain.
Eucalyptol .....5 minims.

One capsule to be given every two or three hours, alternating with the tablets of No. 2.

During all the course of treatment the patient must wash down each dose of medicine with large draughts of distilled or sterilized water, or if indicated some good laxative or diuretic mineral water.

The bowels should be kept moving freely, for the typhoid infection manifests itself on the Peyer's patches. It seems most rational that we should treat these ulcerating surfaces as we do external ulcers, and as far as possible keep them clean and aseptic.

The above named medicines perform these conditions best. The podophyllum and calomel stimulate the flow of bile

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which is nature's antiseptic, and the other drugs act as local antiseptics to the intestine.

If the bowels are allowed to become constipated there is distension from gas which greatly interferes with the nutrition of the ulcerated intestine, bacteria accumulate and re-infection occurs and an exacerbation of fever follows.

The patient's skin needs attention as all its functions have been arrested, the dormant sebaceous and sudorific glands should be called upon to act, frequent sponging with alcohol and water, or alcohol and quinine are especially useful. Dilute acetic acid water acts well at first and is very grateful to the dry, harsh skin.

Frequent sponging will cause the capillary circulation in the skin to be more active, as a large portion of the blood is removed from the internal organs, the kidneys are rested, and as a result their secretion is less concentrated.

The functions of the whole digestive tract are impaired. In the early part of the disease there is loss of appetite; solid food if taken is vomited or undergoes a fermentative change and causes diarrhoea which aggravates the glandular lesions. Fluid diet should be instituted from the first.

Beef extracts, such as the market affords, that are not pre-digested and favor the formation of uric acid. As to feeding, good, rich, fresh milk served hot, having been sterilized, is the best food to begin with. If not agreeing with the patient it may be pre-digested, for the organism is at a low ebb and it is necessary to furnish the food most easily assimilated.

Milk is often contraindicated, either from an idiosyncracy on the part of the patient or because it produces constipation. Then it is difficult to supply a good substitute. Fairchild Bros. & Foster have solved the question and their panapepton containing the edible substance of prime lean beef and best wheat flour, which is thoroughly digested and sterilized, and, being a true peptone, contains sufficient nutriment to sustain the strength without further food.

Reed & Carnrick's Beef Peptonoids is a standard preparation, the best elements of beef, milk and gluten, and are so

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combined as to make a concentrated and easily digested nourishment.

We should not allow our patients to become as emaciated as they often do without making an effort to retard the destructive metamorphosis, for frequently tuberculosis is a sequel to a severe attack of typhoid fever.

The good effects of hydrochloric acid must not be lost sight of, and it is often necessary to use it freely as it arrests nutritive decomposition and renders the contents of the stomach aseptic and promotes digestion. It is most grateful to the patient when given as a lemonade.

A question naturally arises, Do alcoholic liquors shorten typhoid fever? I believe that they are usually given in excess. They no doubt help to sustain life by supplying hydro-carbons to the wasting tissues. Sour catawba, when pure, is often more refreshing to the patient than whiskey or brandy. Nervous depression and the weakened heart should be supported with strychnine, strophanthus and cactus; digitalis is usually too irritating.

I prefer the ice bag in cases of intestinal hemorrhage or when pain is great and there is marked distension of the bowels in the ileocæcal region, but I do not advocate the prolonged use of the ice bag.

Much has been claimed by the treatment as having the power to abort the typhoid attack. I believe it can be done where an early diagnosis can be made.

I am a strong advocate of the antiseptic treatment as laid down by Dr. Woodbridge and heartily recommend it to others as a means for shortening the attack and modifying the disease in all its stages.

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DISCUSSION OF THE PRECEDING PAPERS.

GEORGE DOCK, M. D.
Ann Arbor.

Ladies and Gentlemen; Members of the Society:

I am sure we are all very sorry Dr. McColl was not able to read his part of the proceedings on the symptoms and diagnosis of typhoid fever, because that is a part of the subject that is, after all, of greatest importance. Questions on the treatment of typhoid fever cannot be satisfactorily discussed unless we are agreed on the recognition of the disease. Now, although the scientific reasons which have been explained by Dr. Baker for being in doubt as to the etiology of certain cases of typhoid fever exist, yet at the same time there is a very good and easy clinical rule, to treat as cases of typhoid fever all those that have certain symptoms that are universally recognized as belonging to that disease, and which can not be explained by the presence of any other disease, organic or otherwise. This is a rule, however, that is not uniformly followed, not as the result of difficulties in diagnosis, but rather because of peculiar views. For example, there is a very prevalent idea that there is disease, a fever, running a course of several weeks, which is not typhoid. There is an idea that this prevails largely in the south. There is also an idea it prevails very largely in Michigan. There are towns, for example, where fevers occur frequently, where diagnosis of typhoid fever is never made; where you will see in the reports, "malarial fever" or "typho-malarial" fever. It is undoubtedly the fact that the large majority of these cases are really cases of typhoid fever, and nothing else. It is possible for a patient to have a mixture of typhoid and

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malarial fevers, but practically that occurs extremely rarely, so that it is safe to say, since the discovery of the malarial organism, although thousands of cases have been investigated by experts, not a dozen cases have been reported in which there have been combined the typhoid and malarial fever. There is, however, an idea that there is a disease which is not typhoid, and which may not be malarial, but which is different at any rate from typhoid. For example, soon after beginning work in Michigan I was asked to make an autopsy on the body of a patient who had died under the care of two physicians. One of them had claimed the case was "typho-malarial" and the other "continued malarial" fever. One believed it was malarial altogether, and the other did not. The case proved to be an ordinary case of typhoid fever, as I, in fact, predicted before I opened the body, having seen similar cases in other parts of the country. Examination in the bacteriological laboratory of Dr. Vaughan showed that the ordinary etiological factor was there, but no evidence of malarial. In another case the patient was sent to the University hospital on the twenty-ninth day of a fever. On examining the patient I found no reason to think he had anything but typhoid fever. He had all the symptoms, not necessary to mention, that suffices to enable one to make that diagnosis, especially when no other disease can be discovered. However, the patient's physician came to see me and talked for about three-quarters of an hour trying to demonstrate to me the patient had a sort of *tertiam quid*, which was not typhoid at any rate. The patient, however, died a few days after from hemorrhage; he passed about two quarts of blood in a short time with the ordinary symptoms of intestinal hemorrhage. Unfortunately we were not able to make an autopsy, but I have no doubt at all the patient had typhoid fever. In another case I sent a student home from the university in what I considered to be the early stages of typhoid fever; I was not certain, as I only saw the patient in the first and second days of the disease, and it was quite possible, from the fact that he had been engaged in unusual exertion in very

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hot weather, that he had a form of thermic fever, which usually subsides in a few days. However, I was strongly of the opinion that he had typhoid fever. On account of that, and as he could be transported easily without any risk, and was much better off at home than in a boarding house, I sent him home. His family physician said the disease was not typhoid fever, which was proper enough at that time, but strange to say he treated him for six weeks with continued fever without saying what it was, but insisting it was not typhoid. The patient was sick in bed six weeks. A few days after he began to convalesce he ate a piece of beefsteak, and a relapse of four weeks followed, and the physician then said the patient had typhoid fever.

How a patient who was treated in a perfectly hygienic house and who was presumably fed only with non-infected meat and drink, how such a patient who had been in the house for two months could get typhoid fever is difficult to explain, and I think Dr. Baker will agree with me in saying the only explanation is that the patient had two attacks of typhoid fever. The truth of the matter is, although the description of typhoid has been known for a long time, there is a certain amount of uncertainty in the minds of a great many in regard to some of the most important symptoms of typhoid fever. In regard to the exclusion of malarial fever it is after all not very difficult. If one has the proper experience, proper knowledge and proper apparatus one can examine the blood of a suspected malarial case and make a diagnosis very accurately. In a case where a patient is suspected of having malarial fever where this examination cannot be made it is safe to say the proper administration of quinine will stop all the malarial element of the disease inside of five days, in most cases I would say three days. So that a case that does not subside after the proper administration of quinine within that time should be looked upon as no longer a case of malarial disease, and in the majority of cases that are seen around this part of the country the case will then prove to be typhoid. Another idea is that all cases of typhoid fever have to have the typhoid state. Nothing can be more erroneous than

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that. We know that all sorts of diseases have a very great variety of degrees of severity. Not all cases of gonorrhœa are alike, not all cases of syphilis, sore throat or conjunctivitis are alike. So why one should expect that every patient with typhoid fever should have certain peculiar symptoms is very difficult to understand. As a matter of fact anomalous cases of typhoid fever have been very well described by numerous authors long ago. Unfortunately they have not been recognized as often as they ought to be. Another point is that certain of the striking symptoms of typhoid fever are supposed to be always present, and yet as a matter of fact they are not. For example, I am frequently asked in practice how I can say a patient has typhoid fever when he has no diarrhœa. Ever since typhoid fever has been known it has been known that it is not always a diarrhœal disease. Everyone who has written on typhoid fever, from one end of this country to the other, has called attention to the fact that in a number of cases, by no means small, of typhoid, diarrhœa never occurs. Probably in half of the cases there is no diarrhœa and in one-fourth of the cases there is constipation at times, at least during the course of the disease.

Another idea is that a patient with typhoid fever can never have a chill in the beginning. That is one of the most curious errors of all, because ever since typhoid fever has been recognized chills have been described in the beginning. Louis, Jenner, and in this country Bartlett, described chills. In fact in a case Jenner described in one of his early articles as a typical typhoid case there were four chills in four successive days. Another idea is that the patient must always have a dry tongue, or a red tongue, or a cracked tongue, or a bleeding tongue. I have heard all these points mentioned in medical societies. Now the fact has been noticed ever since the beginning that the tongue is not always dry, that is, there is not always the "typhoid tongue." In order to recognize typhoid in practice it is necessary to have such a knowledge of the natural history of the disease as is furnished by experts of great experience, and that can be easily confirmed in a large experience in any locality where typhoid fever occurs.

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In regard to the exact diagnosis of the disease other than from the symptoms that are well known it is hardly necessary to say much. Unfortunately the bacterioloical diagnosis is not of much practical value at present. With our present methods the patient will have gone far enough to enable a clinical diagnosis to be made or he will be dead and the autopsy will show the diagnosis before the bacteriological diagnosis can he carried out. Probably things will improve so that we can make a bacteriological diagnosis in the early stages. Yet the important thing is to have a clear idea and to make a thorough examination of the patient and then to exclude all other diseases. For example, not long ago a patient was sent to me with a written diagnosis of typhoid fever, yet he had pneumonia of the upper and middle right lobes, and after two or three days of cold bath treatment he was well. So much for the symptoms and diagnosis of typhoid fever; evidently it would take too long to discuss in detail all the points in this connection.

In regard to the treatment it will be impossible to speak at great length; there are certain points, however, I will speak of. In the first place, I am very much surprised that the gentleman who spoke before me said nothing about his own particular experience with the method of treatment he advocated. Certainly if we are not all familiar with that method it is not the fault of the inventor, because our waste baskets are probably full of circulars describing it. So it seems unnecessary to read at length a description of that kind, and personal experience, I am very sure, would be much more valuable to us than general statements. Then the doctor has made certain statements in regard to the cold bath treatment that certainly should not go without contradiction, because they are frequently made, have a sound of plausability, and have a marked effect on persons not familiar with the method. I may say at once, I am a believer in the cold bath treatment, and have used nothing else for a number of years, and have seen no reason from what has been said to-day to change.

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The speaker says that the cold bath treatment does not reduce the temperature much in typhoid fever. That it does not reduce it much at one time is true, but that it reduces the temperature on the whole anybody who looks at the temperature chart from a case treated by the cold bath can easily tell. I will pass these charts around and they will probably show some of the points to be mentioned. I say the temperature is not reduced very much at any one time, but on the whole the patient has very much less fever than he would have without the treatment. Here, for example, is the chart of a typhoid patient who entered on the eighth day of the disease and had received forty baths up to the sixteenth day, an average of five baths a day, and he was free from fever by the 21st, but his temperature had reached normal on the eighteenth day. Now, an inspection of that chart will show that the patient had very much less fever on the average than before. That is very easy to see. Here is a chart from the fatal case I mentioned, a case that came in on the 29th day almost moribund and evidently very little could be expected from baths, and, of course, it is difficult to see from the chart that any effect was made. Here is a chart from another case and one that is a more characteristic chart of typhoid fever. The first case I hand around is rather an unusual chart, but this one is more characteristic. This shows how a patient who was admitted on the sixth day had a temperature that reached normal on the twentieth day and had on the whole a lower temperature than one might expect from the temperature on admission. Then here is another one which shows a highly characteristic chart from a case of typhoid. This is from a case also admitted on the sixth day and the temperature reached normal on the seventeenth. Then here is another one from a very severe case where the patient had so many spots they could not be counted, where all the symptoms were extremely severe, and yet where the temperature reached normal on the twentieth day, the treatment beginning on the eighth, and where the total average temperature was not as high as it would have been without the baths. This is also another highly characteristic chart. The days of

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the disease and the actual days of the calendar are on the charts. Now, of course, these are only a few charts, but hundreds of others like them have been published, and you can see in Brand's work a large number of charts of that kind, and you can read in the reports of Dr. Osler, the most important published in this country, or in the reports of Dr. Wilson in Philadelphia, how there is after all a very marked total reduction in temperature from the baths. But the important point is this: Those who use the baths very soon learn that the reduction of temperature is not the most important result from the baths, but that other changes take place in the condition of the patient which are very much more important. A patient who has been treated in this way not only has a lower total and average temperature than he would have otherwise, but he does not get the severe symptoms that he would otherwise. He is not so likely to go into the typhoid state, he is not so likely to lose his appetite, and the heart and circulation are notably stimulated. The patient has a very remarkable change in the excretion of urine, which I consider a very important result of the treatment and which has not been spoken of very much and may be worth mentioning here. It is well known that patients with typhoid fever treated in the old way, the expectant way, have a very diminished excretion of urine in the first two or three weeks of the disease, and after three or four weeks have marked diuresis, so much so that in convalescence it was not unusual to see the patient pass six litres in twenty-four hours.

I have made observations on the excretion of urine in my typhoid cases, and I have here three records from the last three cases that have been shown and they show this remarkable condition: In the first week of treatment one patient had an average of 1,940 CC of urine daily. There are very few normal people, drinking the ordinary quantity of fluid, who have as much as 1,500. The average hospital patient, who, of course, does not drink as much as most well people going about, and have access to water supply, I have found in various hospitals does not have more than a litre a day. So here was a patient who had an excretion of almost twice the nor-

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mal. In the next week the average excretion was 1,608 CC daily and the third week 1,317, and the next week fell still lower, and began to approach the normal excretion of healthy people. The other charts it is not necessary to describe from the platform. The averages I have put at the end of each week with the average specific gravity. I think this must be admitted to show a very important effect of the cold bath. Most people who use it speak of the diuretic effect of the bath, but it seems to me this diuretic quality has a value that has not been sufficiently emphasized, that is, in hastening excretion of toxic substances from the body, and that is better than giving cathartics or intestinal antiseptics.

The typhoid fever patient of course has poisons in his intestines and if you purge him you can rid him of these, but he has also a large quantity of poison in his blood and tissues, and the best way you can get that out is through his skin and kidneys. So these are some of the important things that must not be lost sight of in considering the statement that the temperature is not very much reduced by the disease. There is another statement the doctor made that is also subject to criticism. The doctor said that the cold bath causes internal congestion. Nothing could be further from the truth. Persons treated with the cold bath are less disposed to pneumonia or nephritis than those who are treated in the old expectant way. So, far from causing internal congestion, it clearly causes a flow of blood to the skin. A patient who is put on the cold bath treatment is not dropped in a tub of cold water which freezes him or frightens him to death, but he is allowed to walk into the tub of water or is placed there. As soon as he gets in the tub he rubs himself, and is rubbed by the attendants, over the arms and legs and over the thorax, so that at the time he comes out of the bath, so far from being pale and having a washerwoman's skin, or looking as if the bath had been two much for him, he comes out with a skin looking more like that of a man training for a prize fight, and at the end of three or four weeks of treatment the man will have a skin more like that of an athlete than that of a

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patient who has been very sick. The internal congestion does not take place at all, it is entirely imaginary.

Another statement that was made is that the bath is laborious. That is unfortunately true and prevents a great many people from using it, and yet my own experience is that the bath treatment of typhoid fever is not so laborious as it is usually supposed to be. There are very few houses where there are not people who have sense enough to carry out the cold bathing in typhoid fever. I have known it to be carried out by persons who might be called ignorant, uninstructed persons who could hardly speak the English language and who had to be shown all the details in the beginning. Whenever a patient is sick with typhoid fever in a private house a great deal of work is thrown on the people in the house. That work is not increased very much by the use of the cold bath, and the patient is certainly not so much disturbed as when he has to swallow drugs, and unpleasant drugs at that, every fifteen minutes. I would like to urge that the labor itself in using the bath is not too great to be overcome in private practice, and as far as the physician is concerned, after people have once been trained to give the cold bath, which requires only one or two lessons, the physician can let his patient go with about one-third or half the number of visits he would otherwise have to make. Everybody knows that typhoid fever treated in the expectant way is an extremely laborious and trying proceeding. People constantly come in to you at all hours on account of the new symptoms. These new symptoms are by no means so likely to occur if the patient is being bathed in the proper way. Another statement that is made I would like to combat. It was said that sponge baths are useful. They are useful in cooling the skin, but they have no other good effect on a typhoid case. In regard to the method of treatment advocated by the previous speaker, I have to admit I am extremely surprised to hear such a method recommended here. In the first place the way the method was put before the profession was, to say the least, unprofessional. The statistics that have been thus far brought forward so far have been altogether insufficient.

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Quite recently in one of the gratuitous tracts sent around I was told eight hundred patients have been treated in that way. Many other methods of treating typhoid fever have much more extensive statistics, but have all been abandoned in turn. So it will be with this one. In the first few years the adverse reports are not published for reasons that are obvious; later, however, they come out.

But I would like to call attention once more to the importance of cold bathing. One thing about the cold baths in suspected typhoid fever is they can be used before the diagnosis is made, and they are used with great success in such cases. For example, here is a chart from a case that was sent to the university hospital with a diagnosis of typhoid fever made by a member of the society, and a man whose opinion I think all of us would accept with respect. The diagnosis was made of course at an early day. The history is so important you will probably excuse me if I read a brief outline of it. Four weeks before the patient was admitted his brother was taken sick with typhoid fever, and was still sick when the patient was admitted. At the time the patient was admitted the brother had a thrombus of the right femoral which, of course, is not an uncommon complication in typhoid. Two weeks after the first brother was taken sick, another was taken sick with all the ordinary symptoms of typhoid and was still in bed when the patient was admitted in the hospital. The third week the sister was taken sick with symptoms of typhoid fever, including a temperature of 104.5. A week before the patient was admitted he had headache in the back of the head, and he could not sleep; the man, however, was not apparently nervous on account of the family history. His temperature reached 100 one morning, and the physician suspecting he had typhoid fever sent him to the hospital. He had symptoms then that were highly characteristic of typhoid fever, and so at once he was put under the cold bath treatment. You will see there the temperature at once dropped and in a few days he was entirely well.

In another case, the chart of which is here, the patient was exposed to typhoid and came in the hospital with what we

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supposed for two or three days was typhoid fever, but became well without having any medicine but simply having cold baths. Of course those may have been mild cases of typhoid and they may have been something else. The important point is, as I say, that the patient, even if seen too early to diagnose, will be very much benefitted by the cold bath treatment. Of course those who use the cold baths do not rely upon cold baths alone; they give their patients other things sometimes. Most of the cases that I have reported here, however, have had no medicine at all. One patient had two or three doses of whisky, but that was a very weak girl who had been very much run down before she was taken sick. She also had once or twice a hypodermic injection of strychnia. In most cases a dose of calomel was given in the beginning. The advantage of giving calomel in typhoid cases is well known. Brand used it in most cases, and I nearly always give it in the beginning and I may say I give it in the course of the disease if the patient has tympanites. Ordinarily, however, a patient can do very well by the use of the cold water enema, giving not less than a pint of water at a temperature of about 65 or 70 degrees. Of course those who use cold baths are by no means opposed to medicines. It may be worth emphasizing the fact that cyanosis or chills are not indications for whisky after the cold bath. Nearly everybody who begins bathing thinks at a certain time that the patient needs whisky. I know myself I have frequently advised whisky when I was beginning the use of the cold baths, but with a little experience one finds these things are not indications for cardiac stimulants, and so they are omitted with undoubted advantage to the patient.

I must apologize for taking up so much time, but the subject is an extremely important one, and as part of the discussion has been left out through the unfortunate accident to Dr. McColl I have presumed probably a little more on your patience than I otherwise would have done.

DR. JENKINS: I would like to ask Dr. Dock what his method is of using cold baths in typhoid fever, especially in private practice.

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DR. J. H. KELLOGG, Battle Creek: I am exceedingly interested in hearing this discussion this afternoon. I think it is very fortunate that we have had so able and interesting a presentation of the advantages of the cold bath in typhoid fever. Two or three points occur to me which I would like to add. Twenty-one years ago, when I was a student at Bellevue Hospital, the method was just being brought before the profession by Drs. Brand and Ziemssen. Dr. Austin Flint was a warm advocate of the cold bath in fever, and employed it in the hospital and in his private practice. Dr. Loomis, however, denounced the method as being unsuccessful, because he had a case of pneumonia in which the patient died half an hour after a bath at sixty degrees in which he had been kept three hours. It seems one reason why the plan was condemned is that it is not always used with discrimination and care. I have been using the cold bath in typhoid fever for twenty years, and have had very good success. Some nineteen years ago I had an epidemic of typhoid fever, with forty cases, and they all recovered with simply the cold bath treatment. I think highly of Bouchard's method. Instead of putting the patient in a cold bath with a temperature of 60 or 70 degrees, he puts the patient in the water at a temperature two or three degrees below that of the body of the patient. If the patient's temperature is 104 or 105 he would put the patient in the bath at a 100 degrees then reduce it one degree every four or five minutes until the temperature is reduced to 85 degrees. Thus the patient is saved the unpleasant effects of the shock of the cold water and chill and the temperature is reduced without producing any unpleasant effects.

I wish to mention also that I find certain cases in which the cold bath is not applicable. I find it necessary to make a discrimination. In cases in which the surface is cold or blue, or if the skin has a goose pimpled appearance and the patient complains of chilliness, I do not put him into a cold bath, but instead put him into a hot pack, and I find that accomplishes better results than the cold application. If the skin is already cold the application of the cold bath might result in

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reaction which would bring the blood to the surface, but the patient may be too weak to react, and there will be great danger of injury to the internal viscera from an increase of the congestion which always exists in typhoid fever, especially in the liver and spleen. I have saved the lives of a number of patients who seemed to be absolutely hopeless, in a comatose state apparently ready to die, by putting them into a hot bath. Later the cold application would be applied. It is surprising to see how the temperature would go down even in a hot pack. I remember the case of a patient with a temperature of 104, comatose when put into a hot pack for half an hour; in two hours the temperature was 101 and a fraction and the patient was sleeping quietly, and in a few days was entirely out of danger. A sheet wrung out of hot water has a powerful effect on the skin in diminishing the thermic processes of the body and later the evaporation from the cooling sheet increases the heat elimination. Thus heat production is diminished and heat elimination is increased by the same application. I find it very convenient in order to know how and when to apply cold water, to obtain a co-efficient of heat elimination. That I do by taking the temperature under the arm and in the mouth at the same time and note the difference in the rate at which the thermometers reach the same level. If the heat elimination is normal the normal temperature is reached with my thermometer in five minutes. Then placing it under the axilla if I find at the end of five minutes it has not reached the maximum, but continues to rise for some time afterwards, I know that the heat elimination by the surface is too slow, and so by taking the temperature in this way a co-efficient is determined, and we learn at once whether the patient is suffering from excessive heat production or deficient heat elimination, and the indications are clear.

Another point which I think is very favorable to cold baths is that it is one of the best of heart tonics. The application of cold to the surface reacts upon the nerve centers in such a way as to increase the power of the heart. This I have often determined by the sphygmograph which shows the increased activity and force of the heart. When the cold

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bath is used it is not necessary to use tonics or stimulants. I have found in the treatment of two or three hundred cases of typhoid fever by this method a mortality rate of less than three per cent. I find the enema as Dr. Dock mentioned exceedingly useful in these cases. I have used large warm water enemata to start with instead of the cold enema, which sometimes gives colic pains. Large warm water enemata will empty the bowels and the cold water enemata may be used afterwards as a means of lowering the temperature. Sometimes hot applications to the spine are preferable to the cold bath or hot pack. Dr. Flint invented what he called the shower pack. He put the patient in a wet sheet pack and every five minutes opened the pack and sprinkled the patient with cold water. In that way, even if one has not a bath tub, he can get the effects of a cold bath with simply a sheet. The pouring pack of Spencer Wells is one in which the patient is put upon a cot ered with oil cloth, with a tub at one end, the other end raised so that the water will run off, then a sheet put around the patient and water sprinkled upon him, so that you get the effect of the cold bath without a bath tub. I think it is very important in the use of a cold bath to apply friction. I think this is a matter of very great importance. Professor Winternitz called attention to the fact that when friction is applied in the cold bath the unpleasant chilling effect is not produced and the elimination of heat is increased more than 30 per cent. Friction assists the passage of blood through the peripheral vessels, thus increasing the amount of blood brought to the surface and the amount of heat elimination, centripetal friction, or friction in the direction of the venous circulation to be employed. Dr. Winternitz has shown that the bath has a wonderful effect in increasing the number of blood corpuscles in circulation. He found that in some cases the number of corpuscles was increased nearly fifty per cent. White corpuscles are increased more than the red. This increase of blood corpuscles is due to the fact that the reaction following the cold bath brings out into the circulation corpuscles which are lurking in the liver, spleen and other congested internal organs. We have in typhoid fever a germ disease and the living cells are

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combatting these germs and the posion produced by the germs. We know that we depend upon the white corpuscles and other phagocytes for destroying the germs in this disease. We depend upon the oxidation process in the liver and elsewhere for the destruction of the ptomaines developed in the disease to which the fever is due. The amount of oxygen received into the system and transmitted to the tissues depends upon the proportion of red corpuscles in the blood. The total area of blood corpuscles in the body is, in health, about two thousand square yards. If, when it is diminished in disease, we can increase the area two to five hundred square yards by means of the cold bath we thereby increase that amount of oxygen absorbing surface and enable the body to better defend itself against this disease as well as against any other disease of similar character.

DR. GEORGE DUFFIELD: Mr. President and Gentlemen: In listening to the remarks upon the treatment of typhoid fever by Dr. Dock of Ann Arbor we are impressed with the fact that he is condemning a treatment that he has never tried and upholding one that we have all tried and I may say many times have found wanting. For a number of years I tried the Brand method and gave plunge baths whenever the patient's temperature rose to 102.5°. I was not fortunate enough to have as many strong patients as Dr. Dock had in the college hospital that were able to walk to and from the bath room, but were so weak that they had to be lifted in a sheet into the tub at the side of the bed and lifted out in the same way. We had not the use of students *ad libitum* to give these baths, but a limited number of trained male and female nurses, and the task was a laborious one, especially when a dozen or more cases were sick at one time and all being treated by the Brand method. Some of our patients died under this treatment and the autopsies revealed the characteristic lesions of typhoid fever. During the spring and summer of 1895 I read several articles upon the treatment of typhoid fever by intestinal antisepsis; the plan though not wholly new looked like a short road to success, and so with my first cases I tried the method as suggested by Dr. Wood-

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bridge of Cleveland, Ohio, and I have never been sorry that I did. Thirteen cases in all stages were first treated and the following points noted. The earlier the medicines were used the greater the benefit. Cases that had a temperature of 103° or 104° to start with, with all other symptoms of typhoid, showed marked decrease of fever after four or five days when this treatment was pushed. Cases that have been treated by other methods and that had high temperature for seven, ten or fourteen days showed a marked lowering of temperature after five or six days of this treatment. All the cases, in whatever stage they were treated, improved and got well; we had no autopsies, and it was not because the cases were of the mild kind. Had I brought charts to show the remarkable improvement in the reduction of the fever, you would have hailed the treatment I advocate as almost miraculous. Though the speaker before me has emphasized the use of baths in all cases, I, for one, shall continue a treatment that I believe is decidedly more satisfactory and more easily applied and with better results. I am satisfied with it. It has done good work in my hands and I cannot go back and resume a treatment that is only partially satisfactory.

DR. J. H. KELLOGG: Permit me a word with reference to experience with the Woodbridge treatment. Prof. Bouchard made quite an extensive study of the effects of mercury in typhoid fever, and he reported that while the course of the disease was shortened the sequelæ of the disease were very much increased and the cases had a very protracted convalescence and I think we can see a very good reason for this. We depend on our livers to keep us alive in typhoid fever and other infectious diseases. If it were not for the antiseptic power of the liver or its ability to destroy the patomaines and toxins developed in typhoid fever every person who contracted the disease would die. We all know that mercurials and soluble metallic substances of every sort when taken into the body are to a large extent retained by the liver. The liver takes up perhaps one-half of the daily dose of mercury when this drug is used. When the liver is already overtaxed by the ptomaines in the body, how are we

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going to help it by the addition of toxic substances with which it must deal?

A medical friend of mine was very enthusiastic about the Woodbridge method and tried it last year in an epidemic of typhoid in which thirty cases were treated. Three of the cases died and two other cases would certainly have died if something more than the Woodbridge method had not been employed. I was sent for by some of the patients after the cases had been given up as hopeless and succeeded in saving the lives of all by a careful use of hydrotherapy. I think the Woodbridge method had a fair trial in these cases, as the doctor was very enthusiastic about the method, obtained the remedies from Parke, Davis & Co., and used them exactly according to the directions of Woodbridge.

DR. W. C. WRIGHT, Unionville: One question, Mr. Chairman, not brought out, and I think it will suffice to challenge the statement made by Dr. Dock in reference to the treatment of the cases with quinine that do not yield the malarial element in five days. How many of us are called upon to sign death certificates for the removal of the body, and if we look over Cooley or Torts we find we are liable to prosecution, and it opens up a question that may envolve some of us in trouble with the present status of the consideration of typhoid fever and malarial fever. I have observed possibly two hundred cases of fever; not one of these fevers had roseola on the abdomen, not one of these fevers had diarrhœa, not one of these fevers had delirium, not one of these fevers had the characteristic rise and fall of temperature, and not one of these fevers has yielded to quinine, and nearly every fever ran from fourteen to twenty-one or even sixty days. That would contradict the statement made by Dr. Dock. The patients almost invariably had been using water that had been drawn sixty to one hundred and eighty feet below the surface from the rock of Michigan bordering next to the salt rock. We claim to have the best water in Michigan. Now then, if the statement made by Dr. Dock is true, what are our cases, and when we sign a death certificate for the removal of the body and are hauled over the coals, so to speak, by the State

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Board of Health, are we liable to prosecution; many of us are ourselves health officers and we have to sign it as a health officer as well as the attending physician.

DR. DOCK: Then those cases do die?

DR. WRIGHT: Two cases have died out of about 125 cases. We have treated about 200 cases. How many die out of the 200 I do not know.

DR. DOCK: What do you give as the cause of death?

DR. WRIGHT: We have many and various causes that might be given.

DR. DOCK: But what do you give, doctor?

DR. WRIGHT: We call them malarial broken down constitutions that cannot stand the run of these fevers. Boys that are only 10 or 12 years of age that can do men's work in stave mills are taken down with the fever. I will give you the character of the fever. In the morning we will have a temperature of 105, and in the evening, with no medicines reducing it, a temperature of 102. The next morning a temperature of 101; the next night a temperature of 106. I have patients here that can substantiate this. That is not a clinical characteristic of typhoid fever by any means. The pulse in the morning is 78 and in the evening 72, and the patient will be sick twenty-eight days and never have a pulse faster than 80. I know one case that I now recall that was sick thirty-two days, or I was in attendance that long until I withdrew, and I never knew the pulse to go above 80. That is not characteristic of clinical typhoid fever. In not one case out of the 200 have we seen the characteristic rash that is described in typhoid fever. Not once have we had diarrhœa, but on the contrary we have had constipation; almost invariably so much so that I think I can safely say 95 per cent. Now, what are our fevers that we are liable to prosecution for?

DR. GEORGE DOCK: In regard to the method of using the bath in private practice, of course that must depend upon local conditions. Where people have no proper bath tub, the most convenient thing is to have one of the portable rubber bath tubs that can be obtained now, and are not very expensive; at least it does not add much to the expense

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of treating a patient from three to six weeks. Where a man lives in a very rich typhoid neighborhood he could do nothing better, nothing that would add more to his practice, than to have a supply of tin or sheet iron bath tubs on hand as Dr. Sihler does in Cleveland. He simply had a number of sheet iron bath tubs made and when he had a patient taken with typhoid he at once sent the tub there. I have seen good results from putting a rubber blanket or a large sheet or mackintosh under a patient when the bath was given, drawing up the corners of the sheet and pouring cold water into the tub in that way. That can be done by inexperienced people.

In regard to nurses I may say that all my patients in the university hospital have been treated practically by untrained people, that is to say by students. Knowing it is so important for physicians to have practical experience, our students are given charge of the typhoid patients and they bathe them. Students who have once seen a patient bathed can afterwards do it very well. Of course students cannot be compared with the ordinary persons one has to fall back on in private practice. They are very much more able to carry out a new method of treatment, still they are practically untrained nurses or untrained attendants. We have no trouble at all in working this way. Dr. Kellogg of course is right in some remarks he made about the use of hot water in certain cases. In private practice, however, and in most hospitals the methods he mentions are not so easy to carry out. I think the doctor must admit that. For ordinary purposes they cannot be used. I would like to say that patients such as Dr. Kellogg describes are not necessarily bad subjects for the cold bath. I may mention one case: That was the case of a man who had never touched cold water in his life, so he told me. He always bathed in warm water even when he washed his face and he was afraid to be put in cold water. The patient, moreover, had been sick three or four weeks before he had the symptoms of typhoid fever and was an excessive cigarette smoker. He had been very much broken down; his skin was extremely pale waxy and the whole appearance of the man was cachectic. However having had experience in

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such cases before I at once tubbed him in water at 65 degrees for fifteen minutes and repeated every three hours. Of course he shivered a good deal during the first three or four days, but in the course of a few days he got so he not only took the bath without discomfort but actually asked to be put in the bath tub. His mother arrived in town late at night and early the next morning she was horrified by reading a sensational account of the way in which typhoid cases were treated; that tubs of ice water were provided in which tha patient was put with large pieces of ice, and afterwards put in a sweat bath. (We don't do that.) She came to me in the most piteous way with tears in her eyes and asked to have some other treatment used. I told her to go in and see her son. Although he was very sick and had fever for about two weeks after that, he really looked better than when he left home; his skin was improved, his expression brighter. So that in patients who seem to be extremely poor subjects on account of their circulation the baths are really beneficial because of their tonic properties as Dr. Kellogg has said. I may say I never had a patient who objected seriously to the bath after the first two or three were given. Most of them in the beginning say it is unpleasant. I have always asked them to tell me very frankly what they thought about it during and after treatment. Most of them say in the beginning it is unpleasant, but nearly all of them ask to be put back in the bath even before the time has come to give it to them. In regard to typhoid fever I am far from believing, at least from hoping, the cold bath treatment is the best method we can ever get. One thing is certain, it is the best treatment we have now and gives better results than any other method that has been used. There is no doubt about that at all. Although I believe better methods will be discovered I do not believe that those methods will consist in the administration together of a large number of drugs, especially drugs that have been used by the profession in this disease ever since they were known. Calomel has been given, podophyllum has been used, and all the other ingredients of this curious combination, and although all have useful properties in various ways,

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yet I must say I delieve methods of that kind are extremely irrational.

In regard to the treatment itself I have only one thing more to say. That is, that everybody who uses it claims that the guaiacol is the most important ingredient in it. The inventor himself says he used his method for thirteen years and with equally good results, and everybody knows that guaiacol was not known thirteen years ago. So that I am forced to the conclusion that either the guaiacol is of no value in the treatment or that the whole thing is a swindle or delusion.

In regard to the cases Dr. Wright spoke about, far be it from me to make a diagnosis of 200 cases I never saw, but I have seen such cases before, and a large majority of them turned out to be typhoid fever. That is to say, when we make an autopsy on one of them, (as of course they die sometimes), we find it to be a case of typhoid fever. From a considerable experience I would say that some of the cases of the doctor's were chronic nephritis, some pneumonia, some of them cases of sepsis or toxemia. I should say that if 200 such cases occur in a locality and are not mostly typhoid, there must be some remarkable local toxic process going on there. It may be in the water, or it may be somewhere else, but it certainly is a remarkable thing, and I think that it is not to the credit of the locality that such a thing can go on. I asked the doctor what he gave as the cause of death in those cases in sending returns to Dr. Baker, and I did not hear his answer.

DR. WRIGHT: "Extreme prostration," or "broken down system."

DR. DOCK: Is that a legitimate cause of death?

DR. WRIGHT: May I add a word before you continue. I tried quinine on one of my patients. I gave her seventy grains inside of fifteen hours. It didn't cure. She didn't die. Let me say a little more in reference to quinine. I treated my cases five years ago with quinine, and I have since discarded quinine entirely, and I have since had not nearly so high a range of fever; and those physicians who have used

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quinine have all had the high range of fever. We are taught in our schools that there is a clinical range of temperature in typhoid fevers. Not only is there a clinical range, but there are other clinical symptoms taught. Now, how are we going to tell that these cases are typhoid fever when they are all contrary to the clinical range of typhoid fever, pulse, tongue, diarrhœa, tympanites, pain in the bowels, not one characteristic symptom of typhoid fever except the continuous fever.

Now, as to the locality, we are drawing our water from a rock which is the strata lying about Saginaw Bay, just above the salt rock. We go down all the way from 60 feet to 170 feet, and I have drank water from a well that was 304 feet deep, same quality of water so far as I could find out. I did not get any chemist to make an analysis of it. This fever always comes on after a spell of very dry weather. It is not because of low wells because we haven't any surface wells. Most of our wells flow, and some of them flow a stream as large as my wrist and with great force. We always get those fevers after a dry spell.

DR. DOCK: I am glad Dr. Wright made those statements. Of course, I do not wish to say that every case of fever that is not cured by quinine is typhoid fever. I said distinctly most of them were, and my experience in cases of that kind is that a large majority of them prove to be typhoid fever. It has happened all over the country that when they have been examined post mortem such cases have turned out to be typhoid fever.

In regard to what Dr Wright regards as the clinical picture of typhoid fever, I must say he has a different idea of the clinical picture of typhoid fever than I have. As far as the pulse is concerned, the pulse of the typhoid is not always very frequent. A pulse between 90 and 110 is a very common occurrence tn typhoid fever. A pulse of 80 sometimes occurs, and typhoid fever is one of the diseases in which a slow pulse occurs, apparently as the result of unusual decomposition processes. If the doctor will read the descriptions in our books he will find these anomalous cases described. Certainly everybody must know the temperature

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curve in typhoid fever is not always the same. Very often it has a rapid rise; often, especially if the doctor has been using antipyretics, quinine, antipyrin and such things, sudden falls. In reference to the use of seventy grains of quinine, I have only to say it is an extremely poisonous dose. If the patient absorbs it she is likely to have amblyopia or to die, and of course if she does not absorb it it is a waste of the quinine. Nobody ever needs seventy grains of quinine in fifteen hours. In the most severe cases of malarial fever in localities where it is most used they do not use nearly that amount. So that giving seventy grains of quinine causes a waste of a good drug, and at the same time causes a certain amount of risk to the patient.

DR. WRIGHT: I do not wish to discuss the matter further, only to say I have Spencer, Loomis, Flint, Osler, and as far as quinine is concerned, Osler gives as many as forty eight grains of quinine in twelve hours.

DR. DOCK: He does not recommend such a dose though, doctor.

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ENDOCARDITIS IN CHILDHOOD.

CHARLES GODWIN JENNINGS, M. D.,
Detroit.

Endocarditis is one of the grave complications of certain diseases of early life. It is never a primary condition. It always results from the colonization of the micro-organisms of an infectious disease upon the endocardium. A majority of the cases of valvular heart disease that are met with in early adult life are the result of a childhood endocarditis.

The distress and disaster that it brings into the life of these patients, the difficulty of its early recognition, and the importance of its proper treatment demand that the possibility of its presence should always be uppermost in the minds of those who have the care of acute diseases of children.

Every case of acute rheumatism, of chorea, of scarlatina, and less emphatically diphtheria, measles and the other infectious and septic fevers should be looked upon as a possible ground-work for a complicating endocarditis

Seventy to eighty per cent. of the cases of heart complication in early life are rheumatic. In acute rheumatism in childhood only a minority of those affected escape endocarditis. British Collective Investigation statistics give, in males, seventy-two per cent. of heart affections. At every visit to a case of rheumatism the physician should demonstrate the presence or absence of endocarditis.

It is an early complication, coming always in the first week of the disease, rarely after the tenth day. It not unfrequently is the first manifestation of the process, the joint inflammation following it.

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It is necessary to bear in mind the erratic clinical history of rheumatism in childhood. It is often unrecognized until the heart complication brings into bold relief the etiology of a day of growing pains, a fleeting joint stiffness, a febrile erythema or a tonsillitis. Until proven to the contrary every case of joint pain and stiffness in infancy and childhood should be considered rheumatism. Too often an imaginary injury is materialized to account for the condition. Thus I have seen an able practitioner with a surgical turn of mind treat an infant for a pair of sprained ankles until polyarthritic symptoms enlightened him. On the first day the clinical thermometer would have settled the diagnosis. An acute joint pain or stiffness, however trifling, whether in one joint or more, with a rise of temperature, is rheumatism with but rarely an exception.

The etiological relation between chorea and rheumatism explains the frequency of chorea with complicating endocarditis. Frequent heart examinations should always mark the clinical surveillance of chorea.

Second in importance to rheumatism in the etiology of endocarditis in children is scarlatina. The heart complication is a late one, usually appearing in the stage of desquamation. Acute scarlatinal nephritis increases the liability to heart inflammation. A febrile temperature, a rapid pulse, precordial distress, or in fact any interruption in the convalescence from scarlatina should direct the physician's attention to the heart.

While not so frequently seen in diphtheria, measles and other microbic diseases, endocarditis should always be in mind as a possible complication. With a full realization of its favorite antecedents and a watchful surveillance of the clinical progress, the physician will rarely overlook this dangerous complication.

The symptoms of the onset of endocardial mischief show the greatest variability in intensity. In fact the condition is disclosed for the most part because it is expected and sought after, and not because of the presence of obtrusive symptoms. Developing during the activity of a rheumatic arthritis, it will

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frequently progress for several days without perceptibly changing the clinical history of the case, and even when the primary disease has passed, the conditions may not cause attractive symptoms until myocardial debility and dilatation disturb the rhythm and force of the heart's action.

This masked endocarditis is common in children in whom the inflammation is so often insidious and subacute. Necessarily the condition will be recognized early in such cases only by the physician's care in physical examination.

When symptoms attend endocardial infection, those which are characteristic are, fever, precordial pain or distress, palpitation or disturbed rhythm, dyspnœa. Rarely a sharp chill and high fever usher in the disease. Usually the febrile movement is of a mild, remittent type; but there is no rule. Every accession of fever or its reappearance after defervescence in any of the diseases disposed to endocardial complication demands heart auscultation.

Palpitation, rapid or slow heart, or any form of arrythmia is very significant. Precordial pain or distress always directs attention to the heart. Dyspnœa comes with dilatation and of course would lead to physical examination. Unfortuately for accurate diagnosis physical examination does not always reveal endocardial mischief in its early history. While usually in the vicinity of the valves, the inflammation may at first be confined to the walls of the heart chambers. There it gives no sign of its presence.

The physical signs which present are: Tumultuous action, feeble action, murmurs, apex reduplication of the second sound. With the inflammation about the mitral orifice, its most frequent location, there is either systolic or presystolic apex murmur. When about the aortic orifice either a systolic or diastolic basic murmur. Because of myocardial paresis the murmur is at first soft and blowing. Later from various physical changes in the vegetation or heart wall, it may assume various characteristics.

It should be remembered that in children pericarditis is a very usual attendant upon the endocarditis of rheumatism. A

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confusion of physical signs may then be presented that time only will untangle.

Reduplication of the second sound at the apex is a frequent physical sign in children. This is probably the result of a thickened and slowly working mitral valve.

The diagnosis of endocarditis will depend then upon the discovery of an endocardial murmur in connection with other evidence of an acute cardiac affection.

The treatment of acute endocarditis is directed to the primary pathological condition and to the relief of symptoms caused by the heart inflammation.

Except in rheumatism the cardiac incident should not interrupt the proper therapeutics of the primary disease. The preventive treatment of cardiac inflammation should be one of the essentials in the therapeutics of rheumatism. Every day of activity of the rheumatic poison that can be saved just so much decreases the probability of heart complication.

The two measures most useful are the salicylates and rest. The control of the salicylates over rheumatism is specific and should be pushed to the full antidotal point at the beginning of the disease. They exert no control over the cardiac inflammation when it is once lighted up. Their action is preventive. Salicylate of sodium is a powerful cardiac depressant, and when heart complication has developed it must be used with caution. Substitution of the alkalies with a less toxic salicyl compound is to be commended.

To a structure or organ threatened with an infective inflammation, rest is a potent preventive. Cardiac rest can be only relative, but every beat that can be saved a threatened heart during the first week of an acute rheumatism helps it to resist the septic invasion.

Opium, phenacetin or the other analgesics are our most efficient aids in securing quiet during the progress of the articular symptoms and should be used with a free hand.

When endocardial infection has taken place the essential of the treatment is again rest. Physical, mental, emotional rest, as absolute as it can be made, and to make it so the

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attendant must be on the alert to avert every disturbing influence.

Excitement of the heart's action usually attends the onset of endocardial infection. The delicate regulating mechanism of the heart adjusts its action to its needs, and this self-imposed turbulence of action should be interfered with only with caution and judgment.

Direct cardiac depressants and sedatives should be used with extreme circumspection. At this stage digitalis is not indicated. Aconite is valuable, but must be given with watchfulness.

Cold compresses safely and pleasantly control tumultuous palpitation. Central sedatives like Dover's powder and phenactin secure sleep, quiet pain, and give the heart rest.

The myocardial debility that soon appears may demand careful stimulation. For sudden failure, brandy, compound spirits of ether, caffein hypodermatically act with promptness. Digitalis in the long run best holds up a flagging heart. The realization of the weakness of the inflamed myocardium and dilated ventricles will insure caution in its administration.

Relapses are characteristic of the endocarditis of childhood and the necessity of prolonged rest, until the danger is past and until compensatory hypertrophy succeeds dilatation cannot be too strongly emphasized. The consideration of the remote effects of endocarditis and their management do not form a part of this short paper.

Attention on the part of the physician to a few simple and well established principles of cardiac therapeutics will save many a heart from the grave crippling effects of an endocarditis.

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DISCUSSION ON DR. JENNINGS' PAPER.

DR. ROOT, Monroe. I think the paper just read is very well worthy of our consideration. I have had some considerable experience in the treatment of cardiac disturbances, and chilly feeling, etc., accompanying it, and my treatment has been largely in the line of Dr. Jennings, but I have been led to believe that as soon as possible we should get the system under the effects of alkalies, and thereby as quickly as possible obtain an alkaline instead of an acid condition; this done we find less danger from inflammatory rheumatism. In fact, I do not consider any form of treatment for inflammatory rheumatism as correct without the timely exhibition of sodium or potassium bicarbonate. Children will take either preparation without trouble.

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DEGENERATIVE PROCESSES IN DISEASE OF SKIN. *

W. F. BREAKEY, M. D.
Ann Arbor.

The student of Dermatology who pursues the subject thoroughly must be impressed with the need of a more comprehensive or more elastic classification; one that would include an arrangement of diseases of the skin like diseases of other organs according to the pathological processes present.

Fifty years ago Hebra published his effort at a classification of diseases of the skin on a basis of pathological anatomy, and his plan, more or less simplified or modified, has been pretty generally followed since.

The pathology of the skin both general and special is being more studied than ever before, and the tendency to investigation in this direction is shown particularly in such recent works in America as "Duhring's Cutaneous Medicine" and in Europe as Unna's "Histopathology of the Diseases of the Skin." Such works inaugurate a new epoch in the study of skin disease.

The pathology of the skin, which is not unlike the pathology of other tissues, may profitably be studied from several standpoints. For instance, one of these points of observation views the manner in which the skin is attacked and the structural changes resulting in the different morbid processes, and necessarily requires a consideration of normal and pathological anatomy and physiology of the skin.

Another view must take account of cause, as for instance whether it is due to functional, inflammatory, parasitic,

* A number of photographs illustrating degenerate processes in disease of skin were exhibited, among them sarcoma, syphilis, rodent ulcer, lupus, lymphangioma and gangrene.

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bacterial, traumatic, contagious, hereditary or other conditions, or a complication of two or more of them. Other points of view would observe constitutional conditions and the performance of other functions. Many points of view will suggest themselves, but the medical attendant will seek those which will throw light on processes present and methods of cure.

It is of special interest to study the tendency in some apparently innocent and benign conditions to become malignant either by degeneration or development. An examination of processes by which or accompanying which this takes place, and of the conditions uuder which it is most likely to occur, is of practical value in making diagnosis and prognosis and in shaping treatment in the first care of cases.

Looking first at the structural or anatomical view the most external layer of the skin, the epidermis, is sometimes the only or chief tissues diseased. From the structure and function in health of the epidermis its value in the maintenance of the function of the skin and its liability to danger in many pathological conditions is obvious.

Bearing in mind its laminated structure, though for present purpose considering only two layers, the corneous and the mucous, we note that while the corneous is the exposed part, subject to traumatic, parasitic and similar causes, yet the deeper or mucous layer is the seat of the more serious pathologic conditions affecting the cuticle. Thus in lupus, psoriasis, eczema and many other superficial inflammatory diseases, this layer is chiefly involved primarily. It is also the seat of hypertrophy in many forms as seen in callosities, warts, ichthyosis and other keratoses. It is in the true skin, however, that the greater number and graver character of skin lesions are found.

Owing to its complicated structure in addition to its own tissues that give it strength and elasticity, in short that constitutes it an integument, it furnishes the frame work of warp and woof in and through which blood vessels, nerve terminals, hair follicles and hair, sebaceous, sudoriparous and lymphatic glands pass. The functional arrangement alone of these

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glands constitute a broad foundation in hyperidrosis, anidrosis, seborrhœa and other disturbances for a long list of pathological conditions, inflammatory, structural, degenerate or malignant, among which are hyperæmia, anæmia, exudations, œdema, hemorrhage, hypertrophies, atrophies, new growths, and changes in blood vessels and lymphatics, the angioma and lymphangioma. The animal parasites prey in this tissue. In this layer the appendages of the skin have their origin, and nutrition and the disorders to which they are subject, except parasitic, are ordinarily due to inflammatory or traumatic causes or to failure of nutrition.

It is not necessary to consider in detail the various theories of inflammation that have had their rise and fall, some of them within a decade. It is not material whether inflammatory changes have occurred by reason of the vascular, the nervous, the paralytic, the exudative, the degenerative, the hypertrophic, or the more recent phagocytic, or the chemotoxic theories. It is more to our purpose to note some of the results of what we understand by inflammation of the corium or true skin. And among the first should be mentioned the tendency to chronicity, and to increase of connective tissue, and to the destruction of tissue. In chronic inflammation, and especially cases aggravated by long continued irritation, changes are found due to impaired nutrition and also to degenerative states of the tissues, as in ulceration, necrosis or gangrene. Many forms of lesions are also found in inflammatory degenerations, not constant or permanent, and which are sometimes spoken of as distinctive diseases, as hypertrophies, atrophies. The destructive process, particularly in the case of the connective tissues and also in the elastic tissue, is chiefly by infiltration. Passarg and Kroesing have shown that in all inflammations, especially hyperplastic and degenerative processes, disappearance of the elastic tissue corresponded with the intensity and duration of the pathological process. A similar condition and process occurs in fibrous neoplasms of the skin. Many forms of sclerosis are results of increase of connective tissue.

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It ought to be remembered that two or more lesions are often found present in the same disease. Oedema as in urticaria, papules and vesicles as in herpes, blebs and bullæ as in erysipelas and pemphigus, nodules and pustules as in acne or furuncle, and any or almost all of them in eczema.

Certain regions and tissues of skin seem to be the seat of particular processes of disease. Parts richly supplied with glands and follicles, or with thin walls bounding cavities, are more often the seat of purulent processes. This may perhaps account in part for the frequency of specific bacillary or infectious disease in the region of the nose and face. Destructive processes in such tissues are prone to occur and slow to repair. It is a significant fact that so many of the graver structural changes in the skin are in the deeper tissues and found at the muco-cutaneous borders, or involving both mucous membrane and skin proper. And it is likewise true that destructive forms of disease of skin beginning on the cutaneous covering are very likely to extend towards the mucous membranes, especially about the mouth and nose or genitals, examples of which are seen in lupus, epithelioma and syphilis. A simple inflammation may be complicated by the presence of bacteria or pyogenic cocci into a grave infective process. And we may have toxic affections of the skin, originating in or complicated by such poisons as ptomaines.

Leloir calls the affections of the skin resulting from inoculation by the products of suppuration "pyodermata," including the direct results primarily produced by the agents of suppuration, as furuncle, carbuncle, folliculitis and those in which there is a predisposing pathogenic cause, as impetiginous conditions.

Septicemia is found sometimes as a cause and sometimes as a result of cutaneous disease. Infective inflammation is often a result of hemorrhage. Necrosis of inflammatory products is often found in these conditions. Necrosis, especially of extremities, is also sometimes the result of impaired nerve influence.

Many of the dermatoses thought to be simple innocuous inflammations have been demonstrated to be the result of

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micro organisms as in the various forms of the tinea fungi, and to appear in certain portions of the body when the conditions of soil are favorable.

Those microbes which go deeper than the cuticle tend to enter the body according to experiments by Wasmuth with cultures of staphylococci and with the cocci of erysipelas and carbuncle on man and the lower animal between the root and the hair sheath rather than through the unobstructed openings of the sebaceous or sweat ducts.

General pigmentation must always be regarded as a grave condition and its disappearance by absorption a favorable prognostic sign. Local pigmentation may result from passive capillary engorgement or evacuation. The pigmentations observed in the late stages of multiple sarcoma and similar grave conditions are probably hemorrhagic rather than disease of suprarenal capsules as sometimes supposed.

Metastasis in skin affections or in systemic conditions is variously shown, notably in gouty rheumatism and eczema. The appearance of eczema during an attack of gout may greatly relieve the gout, while appropriate treatment for the rheumatism will relieve the eczema.

Hemorrhage is usually a complication aud an indication of considerable gravity and may occur from thinning of the walls of blood vessels or from fatty or other degeneration both in early and late stages of disease, as in ecchymosis, traumatism, or purpura.

Hypertrophy occurs in both benignant and malignant conditions involving cnticle and papillary of corium, as in horny growths, or a simple hyperplasia of the corium and subcutaneous tissue without inflammation, as in acromeglia; or with inflammation as in eczema of lower extremities and of connective tissue as in elephantiastic conditions, and of œdema often aggravated if not excited by occupation such as cause increased function of tissue or organ. Marked instances of hypertrophy of pigment occur in malignant conditions, especially in melanotic sarcoma.

Atrophy often follows hypertrophy as a degenerative process, as a morphœa and scleroderma. The hair as in alopecia

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and the nails suffer from atrophy, conditions which indicate disturbed general as well as local nutrition. Atropic changes occur from impaired nutrition, defective circulation or nerve function in various trophic disorders. Some conditions result largely from mechanical pressure.

It is not the purpose of this paper to discuss traumatic neuroses, but it may be relevant to allude to the vasomotor disturbances which lead up to vasomotor spasm, producing a condition of local asphyxia or Raynaud's disease.

The neoplasmata which comprise so large a number of the diseases of the skin are made up of tissue histologically different from that in which it grows; and unlike inflammatory processes which primarily tend to break down the tissues new growths are constructive, building up new formations. They may consist chiefly of connective tissue, new formations and epithelial proliferation. These new formations which grow externally like warts and cutaneous horns are for the most part innocent, while those which grow inwards into the corium tend to malignacy and to destroy the tissues which they invade. These constitute the epithelial cancers so called.

The Adenomata constitute a form of new growth of the skin glands which bear a certain analogy to the new formation of the skin proper. Apparently while the new formation is limited to the gland itself, the condition is comparatively harmless, but when the periglandular tissues are involved, the condition tends more to that form of malignacy shown in the gland cancer with spheroidal and columnar epithelium. Duhring believes it probable that the form of cancer known as rodent ulcer has its beginning in the sebaceous gland. He also makes a group of infectious diseased conditions between inflammations and new growths proper "comprising such diseases as lupus, syphilis, leprosy, glanders, granuloma fungoides and malignant pustule" under the name of Granulomata. Histologically they represent granulation tissue. They are mostly malignant but covering greatly varying periods of time in running to a fatal end. Some of them undergo involutions by various processes. Two cases of skin

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tumors reported by me to this society two years ago corresponded in microscopic appearance to Duhring's Granuloma and also to mycoses fungoides. But microscopic examination of both (the second case having since died) showed round-celled sarcoma. Kaposi regards the conditions as a form of "sarcomatosis."

The consideration of the subject might be greatly extended, but as the purpose of the paper is rather suggestive than exhaustive, it is believed enough is shown to indicate the need for careful observation to determine the existence and progress of degenerative disease.

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DISCUSSION OF DR. BREAKEY'S PAPER.

DR. A. E. CARRIER, Detroit: I am pleased with the paper of Dr. Breakey. There is enough in it for an unlimited discussion. Anyone who has examined carefully under the microscope the skin knows well its delicate structure. The numerous sensitive nerves, and those of special sense that run through it, the number of its blood vessels and its lymphatics aid to render it such, and yet it is the one organ that separates us from the external world, exposed to injuries and the attacks of the various germs, and it probably receives less attention than any other organ of the body. It is simply a wise provision of nature that protects the skin from injuries and the attacks of these different germs which would at once cause disease in other organs not a bit more delicate in structure. The different pathological processes which attack the skin are the same in their manifestations as they would be when attacking any other organ, the difference in structure accounting for the differences that may occur in the symptoms. The atrophies, the hypertrophies, the inflammations, the neoplasms and parasitic diseases are just the same occuring in the skin as they are when occurring in any other organ. The individual being in the proper condition, the disease develops in the skin. Long and hard names are given these processes under the head of disease with a symptomotology somewhat difficult to understand. It is the process that should be observed.

The division of diseases into eczema, etc., often leads to error in the treatment because we are trying to treat diseases. I do not care whether the disease is erythema or whether it is eczema or any other inflammatory trouble, if it is acute it must be treated in a certain way; if it is chronic it must be treated in a different way. The difficulty is in making the diagnosis as to which of these conditions exists. I do not

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care anything about the name. Dr. Breakey's paper is simply a statement of the pathological conditions, the degenerative processes which occur under different names of diseases of the skin. There is one thing, however, I want to call attention to, and that is regarding medication. It may be foreign to the paper. Dr. Breakey spoke about pigmentative degeneration. You are probably aware that long continued doses of arsenic results in some instances in pigmentation, and when it does you have as a result a pigmentation that is going to stay. So I wish to give a word of caution with regard to the continued use of arsenic in the treatment of disease. I have one patient in which the whole body is pigmented. The individual is now practically a mulatto. Regarding eczema and gout; if you have had many cases of eczema and have studied them carefully you will be surprised at the number in which you can trace either a gouty trouble or a rheumatic trouble. I am surprised at the number of cases I trace to a rheumatic condition. The treatment should be directed to the relief of that condition independent of the eczema itself.

There is another point which my friend Dr. Bryan is going to illustrate, for I saw the title of his paper, and that is the relation of a pus germ to diseases. Some one makes the statement that the pus lesions or pustules are not a part of the syphilitic disease. They are due to the pus germ. I think Dr. Bryan is going to say that smallpox can be arrested before reaching the pustular stage. It may be if we could get the individual in that condition in which we could prevent entirely the germ from its lodgment upon the tissue we would be able to prevent pus formation. At any rate in many of the skin troubles the transference of the germ from one lesion to another part of the skin develops a similiar lesion, and we are oftentimes able to cure these processes by preventing the spread of these eczema.

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DERMATITIS HERPETIFORMIS.

ALBERT E. CARRIER, M. D.,
Detroit.

CASE 1. Mr. F. was referred to me for treatment by Dr. Theo. A. McGraw, January 12th, 1896.

Mr. F. was a well preserved man, and had always enjoyed good health; he was over seventy years old, in good circumstances, and not in active business. Four years ago he received an injury which resulted in an abscess of the tibia of the right leg, at its lower third, an operation was made resulting in cure.

Nervous exhaustion followed the operation. Uneasy sensations have been present in the parts ever since the operation, never had any disease of the skin, family history good.

The present attack began about three weeks before he came under my care, and began as a severe pruritus of arms and legs, and over the back of the thorax, with pain in the ankle, wrist, and hip joints. The pruritus was followed in a few hours by pea to finger nail sized erythematous patches appearing in crops. Twenty-four hours later vesicles appeared in the center of the macules, spreading at their circumference until blebs were formed which occupied the whole site of the original lesion. When the blebs were ruptured an excoriated base resulted. There were no lesions upon the face, nor below the ankles and wrists. The blebs when fully developed had tense walls, sometimes fluted, had clear contents, and were not surrounded by an erythematous border. Dark pigmented sites remained after healing. Severe pruritus attended all lesions. The conditions as related had existed from the outbreak of the disease to the time he came under

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my care, new lesions appearing from time to time to take the place of those that disappeared. On my first examination of patient I found in addition to the condition stated that there were on the dorsal surfaces of both hands large plaques of diseased skin, infiltrated, scaling, red, looking like patches of chronic eczema. The itching in these patches was intense. There was also a feeling of tension of the whole cutaneous surface; patient said it felt as if the skin was cracking when in motion. The most prominent lesions at this time were the blebs which were from bean to cherry sized.

Mr. F. was a man of good habits, a very moderate smoker and a single glass of light wine at dinner was the extent of his indulgence in stimulants. A very careful examination failed to bring to notice any pathological condition that would hold the relation of cause to the skin affection. On the 17th of January, five days after coming under my care, a change occurred in the character of the lesions, small erythematous macules appearing, and at the same time numerous small conical papules in groups and in places so closely set as to form dime to dollar sized plaques. The papules were the color of the normal skin, but the plaques were pinkish in hue. At the same time vesicles appeared over the back and front of the thorax; they were very small and appeared in groups, but did not develop in the muscular lesions as the first outbreak of blebs did. Pruritus was intense in all of the lesions.

The patient at this time presented very little healthy skin. There were pea to cherry sized blebs, excoriations where the blebs had ruptured, and dark pigmented macules marked their site after healing. Dime to palm sized erythematous macules, papules in groups, single or forming plaques, vesicles, single and in groups, excoriations from scratching, crusting of vesicular and bleb lesions, the whole making a most characteristic picture. Very little change occurred during the following week, at the end of this time the lesions were smaller in size on the chest and upper extremities while they seemed to increase in size upon the lower extremities, several large blebs forming on the legs. From this time until March 23 the appearance of the skin was about the same,

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new lesions taking the place of those disappearing, blebs, however, being few in number and much smaller, while the vesicles were very numerous. At times the eruption would follow the course of cutaneous nerves symmetrically. Improvement began about this time, and on April 18 my patient left for a foreign tour free for the time being of his skin trouble. At no time during the course of the disease were the palms, fingers, feet below the ankles, face or neck affected.

CASE 2. Mr. A., 26 years old, a merchant, a man of good habits, with a good family record, was referred to me by Dr. E. L. Shurly in 1889 for a skin disease that had lasted over five years. At no time during this period had the skin been entirely free of the eruption. The eruption had been principally vesicular, the lesions being quite small, dome shaped, and clustered in groups of from three to a dozen; contents clear. Pruritus always preceded the eruption from four to twelve hours and continued until the vesicles were ruptured. The sites selected for the outbreak seemed to be the extensor surfaces, although many lesions were found over the back and front of chest and abdomen. The hands, feet, face and neck were free. On my first examination I found vesicular lesions as above described and also a number of dollar-sized, infiltrated, red, scaly patches on the extremities, and groups of pustules that had developed from the vesicles. Patches of excoriation were often found surrounded by vesicular or pustular lesions. Here and there were found patches of small papules. The disease was worse in warm weather; itching in all lesions intense.

A careful examination of the patient failed to elicit anything that would give me a clue as to the etiology of the case. I found that very small quantities of any stimulant would make the trouble worse, and within a very short time. My patient did not use tobacco or liquor. Deriving no benefit from several months' treatment I suggested an ocean voyage and when abroad to consult Kaposi. He followed my advice and Kaposi prescribed for him, but would not make a diagnosis. His treatment, however, was about the same as had already been used. On his way home, stopping in England,

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he consulted Malcom Morris, who pronounced the trouble dermatitis herpetiformis, and sent him to the arsenic springs in the south of France. Deriving no benefit from the springs he returned to me, and as business called him to Chicago I advised him to see Dr. Hyde. He did so. Dr. Hyde diagnosed the disease as dermatitis herpetiformis and suggested a line of treatment that was followed some time without any benefit. My patient married and his dermatitis herpetiformis was cured, and has remained cured for nearly five years.

I have reported these cases as a text, and hope for an interesting sermon from the members of this section. It is now over a decade since Dr. Duhring first called attention to the disease under consideration, and despite the fact that a few prominent dermatologists have refused to recognize it as an entity, the concensus of opinion of competent observers places it as a disease of the skin in the totality of its symptoms entirely distinct from any other dematological affection. It is true that in different attacks the lesions and their behavior may be the same as if occuring in some other disease of the skin; and if watched but a short time, or seen only in a single attack, there may be a liability of not recognizing the affection, but placing it as a pemphigus, eczema or erythema multiformae.

The disease is not a very common one; I have records of twelve cases, five of which have come under my care during the past two years. This is no evidence that the disease is becoming more frequent, but only that I am coming to recognize as dermatitis herpetiformis what earlier in my practice has been regarded as some other affection of the skin. With the exception of two of my cases (one of which had a chorea and the other was a paralytic) all of my patients were in apparent good health, and while some of the attacks lasted for months and even longer, no effect was produced upon the general health other than would naturally result from the loss of sleep and the irritation of the intense pruritis always present, no matter what the lesion may be.

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The disease is a dermatitis and is manifested by multiform lesions, either in the same or different attacks in the same individual. In one of my cases the lesions at first were blebs and the disease was diagnosed and treated as a pemphigus, and seeing it in that stage only it could not be recognized as anything else. Later, however, erythematous patches occurred, and small vesicles, it appearing now like an eczema, and the intense itching of the lesions was favorable to a diagnosis of salt rheum. A careful study of the lesions now showed a peculiarity in their behavior which is not found when they occur in other affections. It was noted that they came in crops and that they were grouped. A crop of pea to dime-sized patches of vesicles or papules covering an extremity, or over the thorax or back, would appear during a night, the patches made up of three or more individual lesions. Later in the case the vesicular lesions gave place to crops of erythematous lesions pea to dollar-sized, and later still there was a return to the vesicles, and sometimes groups of pustules. One symptom was always present and that was the itching.

It is easy to see how a single attack of the disease with a single anatomical lesion such as a bleb or vesicle might be mistaken for an eczema or pemphigus, but returning attacks with different lesions should stamp the affection as Duhring's disease if the lesions have the behavior as stated.

The course of the individual lesions is acute, but that of the disease is chronic and relapses are the rule. The etiology of the disease is obscure, but from the similarity of the symptoms and lesions to affections such as pemphigus, herpes zoster and erythema multiform, in which disturbance of the nervous system either sensory, trophic or vaso-motor seems to stand in a casual relation to the disease, we are led to the supposition that dermatitis herpetiformis should be traced to a similar origin. Corroborative symptoms however are found in only a few cases. In one of my cases a paralysis had occurred, in another chorea existed, but the others failed to manifest by any symptoms any evidence pointing to any pathological condition of the nervous system that might stand

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as a cause for the outbreak. Dr. James Mc. F. Winfield, in a paper read before the Pan-American Medical Congress reported a series of four cases in which glycosuria was present, and he used this fact as an argument in favor of the nervous origin of the disease. It is undoubtedly true that some cases trace their origin to pathological conditions of other organs than the nervous, and are cured permanently by the removal of these conditions.

Treatment—A disease whose origin is so obscure is of necessity difficult of management, and I know of no line of internal or external medication that can be said to be fairly successful in all cases. Those cases that are due to a reflex will be probably cured by a line of medication directed to the removal of a gastric, hepatic or renal disturbance that may exist. As the disease is essentially chronic, any line of treatment decided upon must be carried out persistently. In all cases particular attention must be given to hygienic conditions; the environments, habits, exercise and diet must be regulated. Little is to be said regarding internal medication. A remedy that has been pretty extensively used is arsenic and as it is known to act favorably in the prevention of bleb formation in cases of pemphigus, we would be led to expect that in cases of dermatitis herpetiformis where the lesions were either vesicles or blebs it might prove a valuable remedy. Whenever its use has been decided upon it should be pushed to its full toleration and persisted in for a protracted period until positive that it is not influencing the disease favorably. Do not be too sanguine of benefit resulting from the use of arsenic as it oftener fails than benefits. Never discontinue its use until you have tried the arsenious acid in pill.

Iron, quinia, strychnia, belladonna, etc., have all had advocates, but in my hands have not proved of much value. The valerianate of zinc in one grain doses several times a day I have found of value in relieving the mental symptoms. A disease so chronic and so often followed by relapses will give an opportunity to test the value of many drugs.

Local treatment is of great importance. Pruritus is

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intense in every lesion whether macule, papule, vesicle or bleb, and calls loudly for relief.

It has been my experience that no good results from the use of soothing applications such as are of value in eczemas with similar lesions; remedies that are even harsh and irritating are of greater value, the object being to impress the nervous system profoundly rather than to palliate by soothing remedies. There will be times in the course of the disease when sedatives will be employed temporarily, but as curative agents they will be useless.

Baths which are of so much value in pemphigus I have found of little value in treating dermatitis herpetiformis and only use them for purposes of cleanliness.

Sulphur, ichthyol and the preparations of tar I have found in the order named the best local applications. To get the best results from these remedies they must be rubbed over the surface thoroughly not simply smeared over the eruption; the blebs or vesicles should be ruptured either before the remedy is applied or by the friction used in its application.

Sulphur I use in ointment of a strength of from ten to twenty per cent. and have it applied night and morning, or if the lesions are vesicles I have the powdered sulphur applied in the morning and use the ointment at night.

Ichthyol I use in ointment or lotion (ten to twenty-five per cent.) using the lotion several times during the day and applying the ointment at night. Ichthyol is so disagreeable in odor that patients object to its use.

Resorcin, thymol, menthol, etc., I have also used, but from none of them have I had the good results that have followed the use of sulphur. What I said regarding persistence in the use of arsenic internally holds true in the use of a local remedy, no benefit results from the frequent change of remedies, either internal or external.

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DISCUSSION OF DR. CARRIER'S PAPER.

DR. BREAKEY, Ann Arbor: Dr. Carrier's paper describes a condition which, as he states, is fortunately rare; yet when we are so unfortunate as to have a case of dermatitis herpetiformis it is sure to impress us with the wish that we might have had more experience with it. The description of his first case may be taken as a fair type of cases described in the literature of the subject, and in a general way of those I have seen. There is but little left to add about his description or treatment of the cases. I would commend the thoroughness with which he has investigated and reported upon the cases. There is one part of the treatment which strikes me as decidedly worth mentioning, whether or not it may be added to the list of remedies, and that is in the second case, the patient that got married. I don't know how that might work in the case of a patient already married, whether it is available for general use. It is certainly fortunate that so agreeable a procedure resulted so favorably.

There is another fact that ought to be borne in mind in justice to American medical men, and that is the claim to first naming as a distinct disease of the skin that form of dermatitis which has been known as Duhrings, which met with such opposition at home and abroad that for years it was not recognized, but now not only the more eminent and authoritative works on dermatology in America, but more of those abroad have come to recognize the fact that an American did discover something worthy of name and of permanent record, and I think that is something we may have occasion to be proud of.

The cases I have seen have occurred in people of advanced age. I think, however, that is not always the case. Another fact of interest is that it often occurs in people of comparatively good health, something like psoriasis. The difference as

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between this form of dermatitis and other forms is one important to bear in mind. It is perhaps most likely to be mistaken for ordinary herpes or of zoster because of the fact of it sometimes occurring in groups. I remember having a case some time ago where the vesicles occurred on the neck and side of the head. Some of the cases occurring in that region are nearly like what was formerly known as herpes frontalis. Were it not for the many papers yet to be read in the short time left of the afternoon session, I should be glad to discuss the paper at more length, but it is not necessary. The doctor has so thoroughly covered the ground in his paper it does not need further discussion, and I will only add that I am very glad to have heard it.

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THE MIND IN ITS RELATION TO HEALTH AND DISEASE.

MARY E. GREEN, M. D.,
Charlotte.

What is the mind, and what relation does it bear to health and disease, are questions which have long since puzzled the ablest physicians. Even now when the light of science has penetrated nearly every part of the human system the mind is still a mystery. The discovery of the Roentgen ray is of deep significance, yet it is but a practical demonstration of a truth which has long been known to those who have been familiar with occult philosophy, namely, the control of the mind through the vibration of ether, or the manifestation of certain forces which are latent in every human being, and which may be developed or controlled by those possessing this knowledge. There can be no doubt that thought transference or telepathy is controlled by some definite law which is at present not fully understood by even the few who are students along this line. The latest discovery, the X ray, which seems so marvelous is but the developing or recognition of conditions which have always existed, only we have not been sufficiently developed to appreciate or find them. The hypnotist is able to control thought and action, and utillizes his power to control disease. The same may be said of those calling themselves christian scientists, divine healers, faith healers, metaphysicians, etc.

Balzac who had marvelous penetration into the mysterious wrote a truth many years since which might have been written to-day after our latest discovery in electricity. He says, "Everything is the product of an ethereal substance, which is

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the common base of diverse phenomena known under the vulgar names of electricity, light, heat, magnetism, etc. The transmutations of this substance constitutes what is commonly called matter." This is just the point that is made by those who are studying the forces of the mind; they claim that their results are obtained through this ether, matter being acted upon by vibratory waves. Every physician recognizes the power a mind may have in influencing a patient. If the nurse or friends are cheerful the patient is hopeful and smiles, if the surroundings are depressing there is a condition produced which medicine cannot control. There must be harmony of thought and action to guarantee successful treatment of the perverted condition of the mind or diseased body.

This is especially so in the treatment of the insane. If this vibration of ether, or as one author calls it molecular activity, is the medium through which various conditions can be produced, does it not follow that we should be able to control them by that force within us, by the action of mind upon mind, or if you please mind upon matter. Mental science, because of the difficulty in comprehending it, should not be ignored. True, the investigation of it has not the fascination to the young physician that surgery has, but when better understood will lessen the necessity for it, especially abdominal surgery which is furnished by a class of women suffering from neurosis. May we not also expect a diminution of insanity. Dr. Winslow Forbes stated recently that insanity was largely on the increase throughout the civilized world. In America we know our state asylums are crowded and new ones are called for, and that we are considered an exceptionally nervous people. The statistics of Massachusetts show that the population has doubled the last three decades, while insanity has trebled.

The anatomy of the brain is fully understood, but not the functions of it. Experiments have been made in brain surgery, to relieve cases of degeneracy but without marked success. It is generally considered as beneath the dignity and savoring of quackery for the physician to treat the mind diseased except by medicine.

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The layman however with no medical knowledge whatever reports marvelous cures by the action of mind upon mind. The case of Schlatter at Denver is of recent occurrence, and there must be cases which recur to the memory of every physician of these reported cures. Frequently the best and most intelligent patient will leave the educated physician for the ignorant metaphysician. This leads to the question, what is mind and what relation does it bear to health and disease?

The mind is that divine power dwelling within us by which we reason, judge, will, remember, imagine, in short, by which we perform any of the various functions belonging to the brain.

The mind is distinguished from the body by its absence of physical properties, and by its activity which is manifested in thought and by its power to control actions. The latter qualification was formerly believed to be peculiar to man, but Spencer advanced the theory that every animal organism on earth, even the lowest, possessed this to a certain extent.

Darwin believed that the intellect or mind did not differ in quality from that found in a rudimentary form in all animals. In man however, we do know that the mind accumulates energy, that it is susceptible of impressions from the outside to which it responds with more or less energy. The brain in which is located the mind, conscience, ego or soul, according to different writers is anatomicaly speaking composed of cells, blood vessels, fibres, connective tissue, etc.

Yet no one has been able to state accurately the relation of these parts to the mind itself. We do not know wherein that part which is called the mind dwells or why the movement or rearrangement of cells produce different conditions of the mind. But it is now believed that the activity of the mind in certain directions is due to fine particular molecular arrangement of the cells. If this were not so, how can we explain the artistic temperament in one person wherein the love of form and color predominates, or where exactness is the predominating quality there is a scientific turn of the mind. If there is undue imagination we have the poetic tempera-

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ment; an excess of any of these tendencies creates a genius; carried still further and the person is no longer sane.

These various conditions cannot be ascribed to heredity, but are due to mental conditions produced by some cause within us which environment develops. Call it the divine potency if you will, yet it controls our actions, our being, our health.

This is an age of bacteriology, serum and surgery, with new medicines galore, not only from the mineral and vegetable kingdoms, but we are now using various parts of animals with a zeal and faith akin to that of the most orthodox Chinese doctor. The physician should not be disarmed of knife, test tube or medicine, but in addition to these the mind should be more extensively studied as to its influence upon the body in both its normal and abnormal conditions. In a large city not long since the reported cures of scores of patients by a metaphysician, without medication, many of whom had been the rounds of the best physicians, led to an investigation as to his methods. Here was a man and his wife, neither possessing any medical knowledge whatever, having an enormous practice. Their patients were people of wealth and culture, they were receiving three dollars in advance for office calls while educated physicians were getting but one and two dollars and much of that was charged. An early morning call at the "reading room," as the office was called, found a large number of patients seated in various parts of the room, every one of whom were reading the bible. The room was elegant and artistic in its appointments. Turkish rugs, turkish couches, hangings of tapestries, pictures, all suggestive by color and arrangement of repose. A second room, smaller but not less attractive, was for private consultation. The third room, about ten feet square, had the walls literally covered with splints, braces, plaster casts, crutches, canes, etc., which had been left by patients when cured. During a half hour or more stay not a patient raised their eyes from their reading. Evidently concentration of the mind on something beside self was the first step towards cure. We *may* call this a humbug. We also do the same

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about cures wrought by the two hundredth dilution or trituration of homeopathic remedies, or when rheumatism is cured by carrying a horse chestnut in the pocket, or wearing a metal ring on the finger.

We cannot deny the fact, however, that many of our patients do not get well by either medicine or surgery, or that some do get well by these other methods. Do we question our diagnosis, or do we admit there is some infinitesimal benefit in the mind cure? Because we do not understand the law of psychic force is no reason it does not exist. The psychical part of our body is subject to laws as inflexible as the physical part. If perfectly understood mysticism and scepticism would no longer exist and we would be as ready to admit the curative power of the metaphysician as we now do that of the hypnotist who without touching the patient wills him to act, to forget his previous condition, or if ill he wills him to be well.

And yet we scarcely marvel at this treatment by suggestion by the hypnotist. It is a recognized principle that man grows like that which he contemplates most. Tragedies and horrors are multiplied by reading about and dwelling upon crime. Suicide, insanity, murder and dishonesty are rife in the land and will increase as long as every detail is given as suggestion to those who are not mentally strong. The most successful physician of the future will be the one who recognizes the value of and practices psycho-therapeutics in connection with medicine and surgery.

The new woman who has been through the "up to date" operating room and who emerges no longer a personality complete, but a being minus many parts, might in many instances have been cured by mental suggestion had she not fallen into the hands of a specialist, one of those who believe every patient is afflicted with the particular malady which is his hobby. Medicine should be a science, but is not, for science is an exact truth. We are not yet beyond the experimental stage and are not positive of the results, consequently we are madly rushing after new things.

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If we are to maintain our dignity and self respect we cannot ignore and treat with contempt those who claim to understand the powers of the mind, for in so doing we become not only narrow minded but dogmatic. It ill becomes any one to argue against the therapeutical value of mental force while the fact remains that the action of the mind cannot be rationally explained.

Psychology and mental therapeutics should be taught in all our medical schools, whereas now psychology is only taught in literary institutions, which may account for the fact that the laymen understands the action of the mind quite as well or better than the physician. We should protest against the circulation of reports of crime, as the reading of these acts by suggestion upon those deficient in will power and stimulates them towards crime. We may reasonably expect murder, suicide, dishonesty and insanity to increase as long as every detail is published and read by the masses. If there is no law to prohibit thus educating the people in vice, we should point out the danger. It is true that the good and the useful predominate, yet reports are meagre about great and good people as compared to those of criminals of the worst type. The recent death of Baron Hirsch and the crime of Holmes serve to illustrate this and point out the power of the press for good or evil.

Nervous diseases of all kinds are increasing, especially those peculiar to women. These are in a great measure due to familiarity with and constant dwelling upon these things. It is not an uncommon occurrence to hear young women not yet out of their teens discussing disease and operations with an assurance and knowledge quite startling to the average physician. In the sacred books of the east (the Upanishads) more than two thousand years old are found these words: "When one believes one perceives; to him who sees perceives and understands this, the spirit springs from self, hope springs from self, memory springs from self. He who sees this does not see death nor illness nor pain. He who sees this sees everything, and obtains everything everywhere. He becomes a Svaraj (which means self ruler), he is lord and master in all

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worlds, especially self." This is the very essence of mind cure. Again, we have the command, whatsoever things are honest, whatsoever things are lovely and of good report, think on these things.

Questions which many physicians are asking themselves are, To what extent is the body controlled by the mind?

How does the mind influence one in health or disease?

Does consciousness of ones self fade into unconsciousness through molecular change in the brain substance, and is this effected by vibration through the ether which surrounds us?

How may we best control the mind of those mentally diseased?

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DISCUSSION OF DR. GREEN'S PAPER.

DR. DELLA PIERCE, Kalamazoo: I am glad the subject has been presented; it is a deep subject, and one worthy of consideration. There are some suggestions that I would like to refer to. I am quite in accord with the idea advanced in the paper that the physician should study mental science, psychology. In fact I think the physician should have the broadest general education for the foundation of his medical work. I would like to refer to the sentiment near the close, quoting from some of the ancient authors, carrying out somewhat the idea of the christian science doctrine that whatever we have come from ourselves, that is, deifying our own instincts, as Mrs. Eddy puts it, making self the God-head, which being a part of self renders us infallible. I believe that is a true statement in accordance with their doctrine, and I think that is a sentiment which no well educated man or woman can accede to. While we do not know definitely all the laws of the mind, I think we all agree that those who study the laws of the mind are in a better position to judge of its action than those who rely upon intuition. As the reader said, we all know of instances where patients have had the best physicians without being helped and have gone to these metaphysicians, so-called, and have been cured according to reports. I would like to know more definitely the facts concerning those reports because I think we all know of instances and are constantly hearing others where some patients are cured, and cured (?) until they die. I think that this matter of metaphysics or christian science, so-called, whatever name you give it, hypnotism if you wish, different manifestations of the one idea, that of concentration, is something to be looked upon with a great deal of caution, is something to be studied with care. Hudson, himself one of the great apostles of this psychologic phenomenon and christian sci-

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ence, (and according to the remarks of some persons, we would consider that he must be the originator or at least the discoverer of the fact of the subjective and objective, which are as old as psychology itself), he himself says that the cultivation of this objective state is to be very limited. The undue cultivation of it—I will try to give the substance of what he says—leads to mania and insanity, and it is only by the symmetrical development of these two states, the subjective and the objective, that the proper balance of the mental conditions is maintained. I think we all will agree to that. He himself, moreover, states that whatever of truth there is in this christian science is not demonstrable, that it is in opposition to inductive reasoning, that it is didactic, that it does not rest upon any demonstrable truth known and that it is in substance on a basis contrary to the evidence of the senses. If this is the fact I would like to ask each one to question himself if he is ready to believe that we can advance more readily or more accurately in any line by laying aside the facts attested by the evidence of the senses. There were schools thousands of years ago based upon that idea that nothing that we see really exists, that it is not real, that it is only a picturing forth of what is in the mind, and that is in accordance with the christian science doctrine, but I doubt if the majority of scientific men are willing to go back thousands of years and start on that basis because they will have nowhere to stand if they go back to that. I think that this matter of mental therapeutics, whatever you call it, resting really upon the idea of *suggestion*, or the emptying of the mind of all other matters except the one idea, is capable of doing more harm than even the most ignorant practitioners. (Applause).

Dr. Wright made some remarks on this subject, but from the reporters' table was unable to be heard.

DR. KELLOGG: I think I am acquainted with the patient to whom Dr. Green has just referred. I believe the operation proposed for her was not necessary. She had a small fibroid tumor of the right ovary, and this tumor was not growing at all, but the fear that it might grow and

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destroy her life was so distressing to her that she finally determined, against my advice, to go to Chicago and have an operation performed. But at the last moment she declined the operation. I saw her subsequently, and the tumor was still there, but it had not grown at all. The fact that she had become resigned in mind, happy and satisfied, had enabled her to get well. I suppose this small fibroid tumor is still there, but it is not doing any harm. I believe we ought to use mental therapeutics, but I do not believe in telling the patient falsehoods. I have seen a great deal of mischief from the wholesale, indiscriminate application of this mind cure method. I do not wish to criticise Dr. Green's paper, for I think it is an excellent one, but I think it well for this society to discuss this question, for the time has come when the medical men ought to give some attention to it. There are so many of these mind cure sharks showing themselves in various parts of the country and people are being imposed upon to such a terrible extent, that it seems to me the medical profession ought to look into the matter and take some decided step in regard to it. Not long ago in the state of Ohio a gentleman who was a firm believer in this doctrine had a case of scarlet fever in his family; he was a clergyman and his own child was sick with the disease. He would not allow a physician to attend the case and the child died. He was tried by a coroner's jury and a verdict of manslaughter was brought against him. He was held responsible for the death of the child. I think he was treated properly. It seems to me we ought to have laws in every state making it impossible for persons to go about as so-called mind-curers, faith curers, etc. I have made a pretty thorough investigation of this matter, and I will mention a case which will show the character of the people who are engaged in this business.

I have a case, a little girl who had destroyed the sight of one eye by puncturing it with a pair of shears. Inflammation made it necessary to remove the diseased eye in order to save the other one, as sympathetic irritation was beginning. I wrote a letter, and, with the permission of the young lady, signed her name to it, and sent it to the address of every

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mind cure and faith cure doctor in the whole United States whose address I could find, asking what could be done. Every single one promised a cure of the sight, without asking whether there was an eye to cure or not,—all except a young lady in Boston, who was evidently honest and sincere. She had some doubts about it, but would try. All were ready to undertake a cure for $5 a week treatment. I then wrote another letter in behalf of the child, explaining that she was very poor, that I had treated her free of charge, and begging in the name of humanity and of God that they would do something gratuitously. There was not a single one except this young lady in Boston who was willing to make a trial gratuitously. Yet all promised a cure at $5 a week. My experience has led me to believe that nearly all of these mind cure doctors are charlatans and knaves.

Some twenty years ago I was associated with Dr. George A. Beard in New York. I was his assistant in his private office and dispensary work. He was at that time in charge of mental and nervous diseases in the M. Demitt Dispensary, New York. He conducted a series in what he called mental therapeutics. He cured his patients by means of a brass knob, or rather two brass knobs. The one he placed in the window and the other at the patient's head. He told his patient these brass knobs were powerful magnets, and that a current passed from the knob applied to the head would carry the disease out of the head and body to the brass knob in the window, thus effecting a cure. The bogus magnetism of the brass knobs was as good as anything as long as the patient believed it.

These mind cure doctors have adopted the theory of Bishop Berkeley, that there is no such thing as material existence. They say there can be no toothache, for there is no tooth to ache. So with reference to every disease. If they can make the patient believe he is well, in many cases this is all that is necessary for a cure, for not a few chronic invalids are suffering from fear. They are surrounded by ghosts of maladies which they do not possess.

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This old and absurd theory of Bishop Berkeley was well characterized by Lord Byron when he said:

"When Bishop Berkeley said there was no matter, 'twas no matter what he said."

DR. MARY E. GREEN: I am very glad indeed that Dr. Kellogg related the instance of Dr. Beard. It proves how much there is in mental suggestion. Now Dr. Kellogg we all know has marvelous success in his practice with his patients. And we also know, those who know him, that he gives very little medicine. Dr. Kellogg is just practicing this very method of suggestion that he speaks against, and he cures more patients than anybody I ever knew of in my life. He simply tells the neurotics they are not sick and they can't be sick. I know that Dr. Kellogg is practicing this very suggestion. I am not a metaphysician. Still I must confess there is something in this that we ought to understand, and we ought to be able to meet these very things that are being practiced so much by intelligent criticism. And instead of calling this mental science, or christian science, or divine healing a humbug, let us do as Dr. Kellogg does and not always give medicine, but just inspire hope in the patient and I think we will be doing a great deal of good, certainly more than giving so much medicine or denouncing those who give none. I want to relate one or two cases that came under my personal observation. One was the case of a lady living in Chicago. They were people who some years ago were wealthy. Her husband told me he had spent $20,000 in doctoring, for his wife had been an invalid for many years. After they had lost their fortune, her health still broken, she went to a christian scientist who cured her entirely. She is now well and strong and able to do as much as anyone. Undoubtedly this woman did not need the services of a physician as much as a metaphysician. Had she fallen in the hands of physicians who were as honest as Dr. Kellogg and who did not retain her as a patient because she was a very profitable one she might have been well sooner.

Another case is that of a young lady who had gone from place to place and from physician to physician and without

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getting any help. Different physicians had advised her to have an operation for laporatomy, and finally she weht into a boarding house to prepare for an operation which was to take place at a private hospital, and while there she met some one who wanted her to go to a christian scientist. She did go, and the result was that she never had the operation. That is more than five years ago. The young lady is now absolutely well.

DR. PETTYJOHN, Alma: While I do not want to prolong this discussion as I do not think it worth it, yet I desire to say it was my privilege a few years ago to hear the wonderful Mrs. Eddy herself speak for one hour, and the conclusion I came to at the end of that address was that there was something wrong with the woman's mind. I have given the subject considerable attention during the last few years, I attended the great faith cure convention at Chicago, and I have studied this matter from all the books written on the subject, and I find they do not agree among themselves. There is not a practitioner here but that realizes the great effect of personal influence, but I repudiate the idea that practitioners all over this land would take care of any patient for the paltry dollars that are in it. * * * It is my belief that when these cases do recover it is the result of the treatment they have received at other's hands. But I will stop by saying that in my opinion christian science is like a guinea pig, because in the first place it is not a pig, and in the next place it did not come from Guinea. (Applause.)

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A CASE OF LANDRY'S PARALYSIS WITH REMARKS.

JOHANN FLINTERMANN, M. D.,
Detroit.

Mr. President aud Members of the State Medical Society:

I bring here before your meeting the report of a remarkable case of acute ascending paralysis. The title of my paper in the program reads: "Report of a case of Landry's Paralysis with remarks." It was not my intention to come before your body with the decided diagnosis in the case, but rather with the full report of the same, and in commenting upon the symptoms observed and by comparing the latter with the history of other cases to discuss here whether. this case could properly be classified as a case of Landry's paralysis. In spite of the large number of cases on record the opinion as to the true nature of Landry's paralysis is far from being uniform. In 1895 Landry published the following complex of symptoms, to which since that time the name of Landry's Paralysis has been given. Persons who have so far shown no symptom of sickness commence to complain of slight constitutional disturbance, loss of appetite, some fever, shooting pains in the back and limbs, sensation of weakness and numbness in the feet and legs, which were soon followed by slight paresis in the legs, usually commencing in one leg first, but in the course of a very short time extending over the other leg. After the paresis of the legs has become complete, the muscles of the trunk become affected, finally after a few days attacking the upper extremities in the same manner. After the disease has reached this stage, the muscles of deglutition, articulation and respiration become involved in the same process, death finally occurring after a few days or

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weeks under symptoms of suffocation, except in mild cases where an improvement takes place in the reverse order of the development of the symptoms, namely that the last affected muscles recover first. According to Landry, slight disturbance of sensibility belongs to the nature of the disease, but a great stress is put by him on the fact that no muscular atrophy takes place, that there are no electric symptoms of such observed, and that in fatal cases the post mortem examination has been negative.

The course of the disease is sometimes modified in the manner that the bulbar symptoms and after those the arms, muscles of trunk and legs become affected.

Now let me report my case: On the 15th day of May of this year I was called by Dr. Joseph Schulte of Detroit to see the following case: Charles Eickler of Detroit, 31 years old, who works in a machine shop, fell on the 28th day of April, 1896, when doing some repairing on his house, on the sharp edge of a board injuring the left testicle. Patient did not pay much attention to the injury and went the next day to his work, but as the testicle had become swollen and painful he had to give up his work and repair to his bed. A doctor was called who found the testicle swollen, tender on pressure, for which a poultice of snuff was applied. One week after the accident patient noticed a numbness in his feet and hands, more pronounced in the former, complained that his feet felt cold, was not able to distinguish between warm or cold applications, could not even feel the hottest application. When I saw the patient he was lying in bed, sensorium not in the least impaired, his mind perfectly clear. Patient is unable to walk, cannot raise the feet from the bed, neither bend his knees nor thighs, knee reflexes entirely gone, plantar reflexes exaggerated, cutaneous reflexes slow but exaggerated, tickling of the sole or pricking of the same cause weak spasmodic contraction of the muscles of the whole lower extremities. Sensation of touch not impaired but delayed. The localization of the points where the feeling of touch is examined is not very accurate. Patient localizes position of legs and feet correctly. Pressure on the course of superficial and deep nerves painful. Feet

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and legs are not swollen. The left testicle is somewhat enlarged; little tender on pressure; spermatic cord on this side also tender; is somewhat indurated; cremaster reflexes absent on both sides; also the muscular reflexes of the musculi recti. Patient can raise both arms; says they are weak; complains of numbness in his fingers. Pressure on the nerves painful. No swelling of hands or arms. Paralysis of right facial nerve, peripheral, tongue coated; when put out deviates to the right side. Patient complains of difficulty in swallowing; solids and liquids regurgitate through the nose; complains of palpitation and difficulty of breathing; his speech is impaired; phonation and articulation defective, profuse perspiration. Pupils are equally dilated, answer to light; muscles of the eyes functionate normally; pulse one hundred and fifty; temperature, thirty-eight celsius; respiration. thirty-two; bowels constipated; bladder acts normally; patient complains of insomnia; no nausea; no vomiting. Patient is not able to raise himself; lies helpless in bed. There is no history of any serious previous disease. Family history is good. Patient is married; father of a healthy child; urine has not been examined. Physical examination of heart and lungs does not reveal anything abnormal. From the symptoms present I thought that I had here to deal with a case of acute ascending paralysis. Ordination; hypodermic injection of morphine for the night; ergotine with nitrate of silver, three grains of the former with one-eighth grain of the latter every three hours during the day; sponging of the back with warm water.

May 16th, '96, attending physician reports that the facial paralysis became more pronounced; urine contains albumen.

May 21st, '96, I saw the patient again. The right arm became paralyzed the 16th day of May, '96, the left arm the 19th day of May; the latter showed signs of improvement two days after the paralysis commenced in this arm. Patient is able to raise the left arm to some extent, right arm can only be moved to a very small extent, pressure of the right hand also very weak. Pressure of the nerves of the upper extrem-

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ities very painful, fingers feel numb, cutaneous reflexes exaggerated, feeling of pain delayed, signs of hyperæsthesia. Supraorbital, infraorbital and several points on head and face very tender on pressure. Faradic examination of nerves and muscles of both arms give signs of reaction of degeneration; the same symptoms in the lower extremities. Feet and legs feel very weak, numb; facial paralysis has improved, deglutition also, tongue comes out straight. Patient, who for several days was unable to raise his head from the pillow, has so far improved that he easily lifts the same when he wants to eat or drink. Speech has improved, respiration easier and less frequent, the muscles are flaccid.

I saw the patient again on June 3, '96. Patient has improved in every respect, arms can be moved, lower extremities raised from the bed, patient can bend knees and thighs. He is able to raise himself, facial paralysis not entirely gone, faradic reaction increased, respiration still frequent, pulse 120, temperature 37.9.

Now the question arises, whether the case reported to you can properly be called a case of Landry's paralysis. Taken into consideration the etiology there is hardly any case on record where after a trauma the symptoms of acute ascending paralysis develop. Has in this case the trauma anything to do with the development of the disease? If this question can be answered in the positive does that speak against the diagnosis in this case? The way in which the symptoms appear before us necessitate the bringing of the case under the head of acute ascending paralysis. One week after the effect of an injury the patient complains of commencing weakness and numbness in feet and legs which increased after a very short time to such a degree that he is unable to walk. An examination one week after these symptoms made their appearance reveals a perfect paralysis of the lower extremities with absence of tendon reflexes, slight disturbance of sensibility, vasomotor nervous system so much affected as to cause profuse perspiration. The paralysis successively affects the muscles of the trunk, but before attacking the upper extremities so-called nuclear or bulbar symptoms develop, facial

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paralysis, impairment of deglutition, disturbance of phonation and articulation, abnormal function of respiration and circulation. In this case a deviation from the usual course of the disease takes place in so far as before the development of paralysis in the upper extremities nuclear symptoms become noticable and the paralysis of the upper extremities commences at the time when symptoms of improvement in the bulbar symptoms are already present. The deviation from the usual course of the disease is not necessarily a proof against the diagnosis of ascending acute paralysis. Landry points in his case to the absence of muscular atrophy and the electrical signs of such. The case reported exhibits symptoms of commencing reaction of degeneration. The absence of muscular atrophy can be explained on the ground that such has not yet become visible on account of the short duration of the sickness. This one symptom is not sufficient to annihilate the correctness of the diagnosis—Landry's paralysis.

The fever in the case, the presence of albumen in the urine, the undisturbed state of mind, the clear sensorium are all factors which in combination with the whole history of development of all the symptoms in the case, and also the absence of any signs of paralysis of bladder and rectum, speak for the nature of the disease. The recovery which seems very probable in this case makes it more difficult to say anything of the nature of the pathological changes in the nervous organs by which the clinical symptoms are caused. The pathological processes in fatal cases have not always been found to be of the same nature, the most different anatomical changes in the tissue of the nervous system have been reported and accordingly very different conclusions have been drawn. Now, as to the probable anatomical lesion in my case I should feel inclined to consider the case coming under the head of multiple neuritis. The absence of paralysis of the bladder and rectum, the symptom of reaction of degeneration, the pain on pressure on the nerves of head, face, upper and lower extremities, the flaccid condition of the paralyzed muscles, all these symptoms find an easy explanation in the diagnosis of multiple neuritis. The presence of paralysis of bladder

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and rectum does not necessarily exclude multiple neuritis. Cases of neuritis have been reported where such paralysis was observed. I saw such a case two years ago. On the other hand the clinical symptoms in the reported cases of Landry's paralysis are not always the same, they differ very materially. In some cases the absence of bladder and rectum paralysis is reported, in other cases the presence is mentioned. The muscular atrophy and electrical symptoms of such are found in a great many cases. The negative result of post-mortem examination of fatal cases is not always kept up. If we bear in our mind that at the time when Landry published his cases the microscopical examinations were not up to the standard of the present time, that the theory of the tendinous reflexes was as yet not known, and that the electric examinations were not as accurate as to-day, then we will understand that the doctrine of acute ascending paralysis has now another ground to stand upon. Looking over the large number of reported cases of Landry's paralysis we must come to the conclusion that for the present time the definition of Landry does not hold any more.

We know from our own experience several cases of ascending and descending paralysis in which every single case demands its own explanation. By considering the etiology and the pathological anatomy, we are enabled to compare the opinions of different authors on this disease, and by comparing such we will reach a point where we can make our classification.

Of the etiology of Landry's paralysis not much is known. Landry expressed in his publication that very likely a poisoning had to be considered as the cause of the disease. Westphal and several others came to the same conclusion, basing their views on convincing reasons. A great many points led to the assumption that here a toxic or infectious process was at work. In a great many cases enlargement of the spleen, swelling of the lymphatic glands, hemorrhagic foci in the lungs and intestines, albuminuria, etc., were found. Baumgarten, Curschmann, Centani, Eisenlohr have described cases of such nature. Baumgarten published a case in which anthrax

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infection was observed where the bacilli were found in the blood and in the tissue fluids. Curschmann speaks of a case where, without previous symptoms of typhoid fever on the mucous membrane of the ileum, typical typhoid lesions were found and at the same time the characteristic bacilli in the tissue of the spinal cord. Centani had a case in which besides interstitial neuritis bacilli were found in the endoneural lymphatic space.

The anatomical changes found in cases described as Landry's paralysis are very different In a great many cases the results were entirely negative, corresponding to Landry's and Westphal's definition of this disease.

In some cases disseminated inflammatory foci were found in the medulla oblongata (especially in the pyramidal tracts), exudations or capillary hemorrhages in these parts; in other cases similar or the same changes in the spinal cord were observed, particularly a swelling of the axis cylinders in the white substance of the anterior lateral columns was a prominent condition. Very often the characteristic signs of a slight poliomyelitis were present. In one case only a degeneration of the anterior root of the spinal nerves was found; in another case a small myelitic focus and peripheral neuritis.

Since the attention has been directed to the peripheral nervous system, neuritic processes have been frequently met with, and therefore a great many authors have considered those neuritic changes as the substrate of the whole process.

On the different anatomical changes in the nervous tissue no uniform explanation of the disease can be made.

Oppenheim expresses the opinion that the complex of symptoms can be traced back to toxins, which in the majority of cases are products of bacteria. Therefore, the possibility of its development in diphtheria, typhoid fever, anthrax, influenza, etc., probably also in septicæmia. Oppenheim has described a case in which a man had Landry's paralysis after an injury from a horse sick with septicæmia. Alcohol and syphilis are also etiological factors. Furthermore, Oppenheim comes to the conclusion that it is very doubtful whether the mere entrance of the microorganisms into the spinal

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cord, medulla oblongata and the peripheral nervous system can cause the symptoms. He believes that the poison which causes the disease has its injurious effect on the motor tracts of the spine, medulla oblongata and peripheral nerves, that the poison is able to cause paralysis without visible anatomical lesions of the affected parts, and the same poison in some cases produces anatomical changes visible through the microscope, such changes sometimes to be found in the motor tracts of the medulla oblongata and in other cases in the peripheral nerves.

The vasomotor centre and tract are, as a rule, very little damaged, therefore hardly any muscular atrophy is observed. Oppenheim opposes an idea of Gowers, who believes that especially the gray substance of the anterior horn, the final branches of the pyramidal tracts, are affected. Oppenheim comes to the conclusion that in the affection which has been called Landry's paralysis we have to deal with a disease which can be well distinguished from other similar morbid processes. Cases which deviate from the type as described by Landry come mostly into close relation to multiple neuritis, an affection which has the toxic infectious base in common with Landry's paralysis. Oppenheim does not believe it admissable that Landry's paralysis should be entirely identified with polyneuritis and be considered as such. Leyden distinguishes between two forms of Landry's paralysis; the bulbar and neuritic form. Solly, in a paper published in No. 12 Berliner Klinische Wochenschrift, 1894, gives as the result of his investigation that cases running their course under symptoms of acute ascending or descending paralysis belong in their majority to polyneuritis acuta, that some of the cases are caused by acute myelitic or metencephalic foci or by the combination of these different affections, and that there are other cases in which some cause impairs the nervous function without leaving any anatomical change discoverable through the microscope. This last form would correspond most nearly to the original definition of Landry's paralysis.

The etiology in the reported case which I bring before you is very complicated. Has the trauma, the falling on the sharp

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edge of a board, injuring the left testicle anything, to do with the disease? Can in the application of snuff tobacco be found anything as to the cause of the disease? The snuff was examined whether it contained lead; no lead was found. Nicotine poisoning can be excluded. The patient has no symptoms of lues, neither of alcoholism. He admits of having had gonorrhoic infection, but should gonorrhoic infection which took place eight years ago have anything to do with the disease he is now suffering from? The injury of the testicle, followed by a painful swelling of the same and the spermatic cord, may cause a process of inflammation in the spermatic nerves, resulting in an ascending neuritis of the same side, at the same time producing the same process in the spermatic nerves of the other side, extending itself over the nerves of the lower extremities, trunk, bulbar region and upper extremities. The relation between gonorrhœa and some rheumatic processes has been very often spoken of; should it therefore be possible that the poison which in gonorrhoic infection is liable to produce rheumatic attacks should remain in the organism for some time and become injurious if by some incident it is thrown into the system? The injury to the spermatic cord has perhaps detached or liberated an old gonorrhoic focus, brings it into circulation and gives arise to gonorrhoic neuritis, which runs the course of a rheumatic poly neuritis, accepting in its course the symptoms of ascending paralysis.

This is my explanation of the etiology in this case as I have reported it. Gonorrhœa eight years ago, which may have left a product of this affection in the neighborhood of the infected part, this product having become encapsuled so as to become isolated, quasi latent, is brought again into contact with the organism, in which no pathological process so far was going on, by a trauma, and in this way causing the development of the peculiar complex of symptoms called ascending paralysis.

June 23rd, '96. According to the statement of the attending physician the patient has nearly entirely recovered.

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ARREST OF SMALL-POX IN ITS VESICULAR STAGE.

ALONZO BRYAN, M. D.,
Detroit.

On Monday, January 14, 1895, at a stated meeting of the Detroit Medical and Library Association, I advanced the theory that smallpox can be arrested in its vesicular stage. About twenty persons were present, all or most of whom were members of the society, and they accorded my theory considerable applause and encouragement.

In the paper which I then read, I maintained that the eruption of true smallpox only extends to and includes the vesicular stage; and that the vesicles are simply infection atria through which pus germs and saprophites are intromitted to the structure of the true skin and to the general system. The paper claimed that the germs of suppuration and of putrefaction are lying in wait, imbedded in the epidermis, ready to commence their ravages upon the true skin and system at large as soon as their liberation is effected through the instrumentality of the maceration of the epidermal layers by the fluid of the vesicles.

Furthermore, in the same paper I declared it as my opinion that the aforesaid pathological germs might be forestalled in their pernicious action by means of germicidal fluids applied to the general surface of the body whereby a complete maceration of the epidermis could be effected. To accomplish this object I proposed baths of long duration in antiseptic fluids. In a word, I suggested the cautious and gradual evolution of a system of disinfection to be applied to the entire epidermal covering. When the epidermis was disinfected it was to be kept that way by means of suitable antiseptic dressings ap-

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plied to the cutaneous surface until the complete dessication of the vesicles.

By means of such a course I proposed to arrest the smallpox in its vesicular stage, and completely prevent suppuration of the skin, and suppurative fever with its various dangerous complications. The above statement expresses only the cardinal principles of the subject as discussed by the paper. Up to the present date, June 4, 1896, the paper has never been published.

A few days after having read my paper before the Detroit Medical and Library Association I assumed charge of the smallpox hospital at Detroit, on January 22. I supposed that I would have abundant opportunity to test my theory, but in this expectation I was rather disappointed than otherwise. My appointment was looked upon as a political arrangement, my theory was freely advertised and adversely criticized by the newspapers, the general public was enraged, and the poor, unfortunate patients at first looked upon me with dismay rather than with confidence. Suspicion and distrust were depicted upon all of their countenances. I found the hospital the last place in the world to exploit a theory. Furthermore, I was deprived of my office on March 9 by reason of a previous act of the state legislature.

According to my view it was necessary to commence the treatment for the arrest of the disease either during the primary fever or at least in the incipiency of the papular stage of the eruption. After the slightest degree of pustulation had supervened it would be too late. Nearly all the patients who arrived at the hospital arrived after the vesicles were beginning to become purulent.

However, one case was on the ground sufficiently early. It was the case of a woman named Mrs. Lena Press, who came as a nurse to attend her sister who entered the hospital fully broken out with the smallpox. This woman while attending her sister, as a nurse, in due time came down with discrete smallpox. In this case the circumstances were such that I only ventured to apply my treatment with the view to the prevention of pustulation, locally. I made my applica-

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tions to the hands and forearms, which members showed a very free and perceptible papular eruption. The papules all developed into vesicles, but only a very small number became purulent, dotted here and there. The vesicles dried up, and assumed the appearance of flat, dark brown, dessicated scales, closely adherent to the skin. In due time they were exfoliated, leaving no scars or pits behind.

In this case on every other part of the skin than those that were treated the vesicles developed into the complete and typical pustules of variola, the demarcation at the elbows sharply showing the difference between the arrested eruption and that which was allowed to proceed.

And this was the manner in which I proceeded to arrest the development of the eruption. I first scrubbed the skin of the forearm and hands with a strongly alkaline soap and water in order to remove the oil naturally existing in the epidermis. Then I washed the skin with alcohol to kill germs and also to remove oil. Next the skin was washed with a 1 to 500 solution of mercuric bichloride. Then it was washed with a soluioh of hydrogen peroxide. Each of these washings was of ten or fifteen minutes duration. Finally the parts were well wrapped in a thick envelope of borated cotton.

The above washings were repeated daily for three days, and the borated cotton was applied for a day or two longer.

It should be noted that I would not recommend a universal bath of a solution of the bichloride of mercury on account of its possibly dangerous systematic effect.

I did not give this subject of experiment universal baths of antiseptic solutions, because I did not believe she could be prevailed upon to consent to their use, for she evidently shared in the mistrust which reigned throughout the hospital.

Indeed, according to my theory, I should have expected a very imperfect or negative result from the merely local application of antiseptics. Especially would I look for failure in a case of confluent smallpox, and for this reason that after the suppuration of a large number of untreated vesicles enough pus germs would be found absorbed in the general circulation to effect a suppuration of the superficially steril-

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ized vesicles upon the well known principle that bacteria floating inertly at large in the system may localize themselves by attacking a weakened and non-resisting part. Nothing is more clearly demonstrated in pathology than that pus germs existing in a state of general circulation often concentrate themselves upon a focus of least resistance and there display their specific energy. So we might reasonably expect a vesicle of variola to be such a focus, and though it might be protected from external infection it could be successfully assailed from within.

Therefore in a case of discrete smallpox (such as the subject of my experiment was) the damage from the intromission and subsequent localization of bacteria might be trifling, yet in a case of confluent smallpox the phenomena of what might be termed intra-infection would doubtless be very grave.

And from this very cause we might infer how essential it would be to immerse the patient for hours at a stretch in a suitable germicidal fluid, and at a period, if possible, before the papules have begun to show any accumulation of serum at their apices.

The main principle is to macerate the whole epidermis thoroughly with some suitable antiseptic fluid, and to do it before or at the very incipiency of the eruption.

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THE STUDY OF CRIME AND DEGENERATION FROM A MEDICAL STANDPOINT.

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Detroit, Mich.

My object in presenting this paper is not to offer anything distinctly new or to favor any preconceived theory, but rather to bring together certain facts from various sources and to draw such conclusions as the facts would seem to warrant.

We must assume for the purpose of our study that mental acts have a physical basis.

Since the days of Ferrier, whose experiments confirmed the works of Fritsch and Hitzig of Berlin, the localization of brain functions has been well established. It has come gradually to be acknowledged with the accumulated evidence derived from the study of the lower animals and man, both in health and in disease, that all of our mental acts have a physical basis, in the sense that mentality is accompanied by a chemical change and a structural rearrangement of the molecules of the nerve cells. Hodges, in the study of fatigue, found an actual change in the brain cells following activity that disappeared after a period of rest.

There are some who do not believe in this newer physiology, but the evidence derived from competent observers seems to warrant us in accepting this doctrine as the most rational explanation. It was formerly believed that our passions, such as hatred, love, fear and the like, as well as reason, were confined to man; but the study of the works of Romanes, Lubbock, Darwin and many others convinces us that these qualities are common in the lower animals.

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It is now generally accepted that the mental acts of animals, children and adults differ not in kind, but only in degree; that the same laws that govern our minds govern those of animals, and that similar chemical and molecular changes take place in the brains of both men and animals. If these facts are true the study of crime and degeneration has a new interest, and much can be gleaned from the psychological study of animals and man.

The study of criminals and degenerates has been mainly along two lines: First, the somatic or bodily anomalies; second, the psychological peculiarities.

Lombrose was the first scientist systematically to study the physical peculiarities of degenerates, and his tabulations of the various measurements of criminals and the insane form an interesting study.

It would seem from the study of the writings of the Italian school that abnormalities in general, and those of the head in particular, are more common in criminals than in normal individuals. The cephalic indices are greater, the prognathous jaw and the atypical or projecting ears more common than in the normal.

The committee appointed by the British Medical Association to investigate the development and condition of the mind among school children found that the ear defects were frequently associated with nerve defects and mental weakness. Dr. Langdon Down finds a resemblance between feeble-minded children and the various ethnic types of the human family, especially the Mongolian and Negroid.

However attractive statistics and measurements may be, we must not forget the importance of racial characteristics and the effect of diseases both pre-natal and post-natal on the physical development of the individual. It is also important to remember that apparently normal persons may frequently have one or more of these degenerative marks. It would seem that one is justified in concluding, after taking all the facts into consideration, and from the study of a large number of cases, that the criminal, the insane, the idiot and the

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feeble-minded have physical anomalies oftener and more highly developed than normal individuals.

The more recent studies of criminology have been along a psychological line, rather than by the observation of the purely physical anomalies. It is as impossible to define sharply the limits between a normal and an insane or a criminal person, as it is to understand accurately the difference between the diseased and healthy action of cells.

As Max Nordau says: "The difference between disease and health is not one of kind, but of quantity. There is only one kind of vital activity of the cells and of the cell systems or organs. It is the same in disease and in health. It is sometimes accelerated and sometimes retarded, and when this deviation from the rule is detrimental to the ends of the whole organism, we call it disease."

So it may be said with criminals, it is impossible to define the limits separating normal from degenerate persons. All mental processes are governed by the same laws, and all of us have at some time in our existence criminal tendencies; but it is only when our evil propensities become detrimental to the community in which we live that we are considered criminal.

Let us consider the evolution of crime, in order that we may rid ourselves of the idea that those acts which we are accustomed to call criminal are confined to the human species. Animals low in the scale of life are prone to commit such criminal acts as infanticide, murder, and thieving. Snakes very often devour their young.

Lubbock cites instances where bees and ants kill those of other species for the purpose of robbery. Romanes, in his "Animal Intelligence," gives any number of instances of crimes committed by animals. Speaking of a certain species of ants, he says, judging from experiments, it would seem that hatred was a stronger passion than affection, while in other species sympathy and affection seem to be more highly developed. Audubon is reported as having observed the thieving propensities of birds. Many species are habitual thieves and often secrete articles apparently of no value to themselves.

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The tendency to steal and hide things is one of the strongest traits of the wolverine.

Rats, mice, wolves, rabbits and birds have been seen to kill those of their own species. Dogs have been known to slip their collars and go miles to kill sheep, then wash the blood from their bodies in a stream, return before daylight and slip on their collars. Monkeys many times will kill their young when tired of carrying them. They are also fond of deception and are great thieves. Many animals develop uncontrollable passions, and while infuriated often kill those of their own species or even family.

While these facts and many others have been observed, it is true that the maternal instinct is highly developed in animals, and that affection is so strong in some that they will die for or in defense of their own species, and in some instances for those of other species. Though some of the acts mentioned may have been done in self-defense or self-preservation, there are many apparently purposeless acts against the natural instincts of animals that may surely be classed as morbid.

Turning our attention to the uncivilized races of men, we find crime especially frequent. The primitive tribes, as a rule, place but little value on human life, especially on that of women and children. Wood, in his "History of the Uncivilized Races of the World," cites any number of instances to show the criminal tendencies of the savage. Some of their crimes are associated with their religious or superstitious beliefs; but many seem to be the natural result of unrestrained animal passions. I have been told by one living among our American Indians in Idaho that infanticide is common with them.

The study of childhood offers much that is of practical as well as of scientific interest. The psychology of children occupies a middle ground between that of the lower animals and the adult man. It may not be pleasant to some to associate our babies with the lower animals; but it is, nevertheless, true that a close study of human embryology and the psychology of childhood teaches us that there is a definite

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relation between the workings of the animal and the infant mind.

An infant at birth has its animal instincts highly developed, and in gesture, mimicry and instinctive movements bears a close resemblance to the monkey. As the minds of children gradually develop, those qualities which are prominent in criminals and degenerates are the first to evolve. The idea of self enters more largely into all their acts than in normal adults. The emotions of the child are more easily aroused and less under the control of the will than in later life. Attempts to injure those around them are very common during fits of anger.

Petty thieving of tempting morsels, of playthings and of similar articles, and the practice of lying are common even among carefully trained children. Capital crimes are not unknown among children. Murder and assaults have been reported many times. Children have a very imperfect idea of ownership and responsibility. Deceit, vanity, pride, superstition and cruelty are common traits in early life. These qualities, so undesirable in adults, are usual in children, and an exaggeration of these very traits in criminals marks them as vicious members of the community.

Idiocy, feeble-mindedness and epilepsy are accompanied by mental impairment, and often lead to crime and acts of violence. These affections may be due to congenital defect, to injuries or to disease. Emotional instability is common among criminals, and often develops while they are secluded in prison. They frequently have periodic explosions that resemble epilepsy and which, like that disease, are more frequent during hot weather. One observer states that four per cent. of the criminals under his care were subject to violent fits of passion; among women these attacks are more common during the menstrual period.

Lombrose has pointed out that those regions in Italy that produce the most epileptics also produce the largest number of criminals.

The relation between insanity and crime is an important one, although too large a subject to be considered in a paper of this kind.

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Those crimes that lead most often to insanity are potent agents in the production of crime. For instance, syphilis, alcoholism and sexual excesses are responsible for much of our insanity and our crime.

Jacobi says: "The constitutional criminal is a tainted individual and has the same relation as the epileptic to convulsions. The essential reason of abnormal brain action is abnormal brain structure." Later he says: "There is no special type of insanity or of criminality. There is but one thing fixed, that is the relation of cause and effect, the correlation of physical causes and mental and moral symptoms."

Lombroso in his "Men of Genius" and Nordau in his "Degeneration" give any number of examples of excessive nervous and mental action in men and women who have been prominent in their respective fields of activity.

While it is true that Nordau has exaggerated the condition, it is, nevertheless, a fact that the history of poetry, art, music and literature is filled with examples of men and women who bore distinct marks of degeneration. Many inherited insane tendencies, some succumbed by reason of disease, overwork or dissipation. According to one authority insanity is forty times more frequent among criminals than among average men and women.

We can trace in all individuals a process of evolution in the building up of their natures. Animal instincts are highly developed at birth, next intellectual power is added, and finally moral and ethical conceptions help to round out a man's character.

That it is possible to have arrest of development during any stage is apparent, just as there may be arrest of development during the embryonic stage, leading to congenital anomalies. If the process of evolution is checked in early childhood, only the animal instincts exist, and idiots and imbeciles are the results. If the arrest takes place later, we have impaired mental power or feeble mindedness. If the arrest or atrophy is postponed until manhood is reached, we may have intelligence, but no moral sense. There are in society today many moral imbeciles whose intelligence dis-

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guises them from the world until they commit some heinous crime that reveals their true character to society.

Heredity exerts a marked influence in the production of criminals. Just as physical and mental peculiarities are transmitted from parent to offspring, so moral and criminal tendencies are, likewise, inherited by children of degenerate parents. Some would explain these apparent transmissions of criminal tendencies to environment, but after considering all points there seems to be no doubt that criminal tendencies are actually transmitted. We do not mean by hereditary transmissions of criminal tendencies that parents must have been actual criminals in a legal sense, or that the children are; but that the inebriate, the epileptic, the insane, the morally depraved beget children that are deficient morally and are prone to drift into criminal life, without regard to environment.

The Jukes family, as studied by Dugdale, is an excellent illustration of the influence of heredity. From the head of the family, Max Jukes, a great drunkard, descended in 75 years 200 thieves and murderers, 280 invalids attacked by blindness, idiocy or consumption, 90 prostitutes and 300 children who died prematurely. Out of 709 descendants, carefully studied, but few were honest. Of the men not more than 20 were skilled workmen, and 10 of these learned their trade in prison.

It has been observed that criminality, like idiocy, tends to run in the line of the eldest sons. Morris gives instances where, for four generations, marks of degeneracy were plainly evident, and with the fourth generation the race became extinct. He also points out the tendency to degeneracy in children from intemperate parents.

It would be interesting to study more in detail the influence of such diseases as syphilis, tuberculosis, alcoholism and meningitis in the production of abnormal conduct. That these and many other affections are important can hardly be doubted after studying carefully the histories of many criminals, who, either by inheritance or from acquired disease, have dyscrasiæ which enfeebles them physically and renders

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unstable their nervous systems. We must not infer from this study that criminals and degenerates can be arranged like pathological specimens in a museum, each labeled as a distinct morbid entity, with a proper diagnosis, and all dependent upon actual disease. We must remember that environment, education, association and climate bear an important relation to vicious conduct, and it is only by weighing these various factors, in each individual case, that a scientific diagnosis can be made.

The conception of crime on the part of many reminds one of those days of superstition and ignorance when those affected with insanity, epilepsy, chorea and similar diseases were considered to be bewitched by the devil, and therefore were cast into prison, hanged and even burned at the stake. The history of witchcraft in our country is a sad blot upon old New England. To-day all is changed. We have asylums for the insane, colonies for the epileptics and homes for the feeble-minded, while the aim is to reclaim these unfortunates and to return them as useful members to society. Where science and art fail to cure we should care for them in a humane and economical way and prevent them from injuring society.

From our experience in the past in dealing with those mentally impaired, and from our present knowledge of the normal and diseased workings of the brain, can we not apply similar methods to the study and care of criminals and degenerates?

This problem is of great importance to society and the state, and it behooves the medical profession to give the same study and thought to it as they would give to mental diseases in general. It is necessary that we keep in touch with this problem in order that we may give an intelligent opinion and wisely direct legislation along lines that are practical, scientific and just.

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AN OLD LETTER—PNEUMONIA.

W. C. WRIGHT, M. D.,
Unionville, Mich.

Warren, New Hampshire, Jan. 25, 1830.

Dear Sir:

By the desire of friends I am induced, though a stranger to you, to announce the melancholy intelligence of your brother James Williams' death, which happened on the 24th day of December, 1829, and was occasioned by inflammation of the bronchial and other membranes of the lungs, hepatization of their substance, etc.

I first saw him on the morning of Sunday, the thirteenth, and learned that he had been attacked the preceeding evening with rigorous headache, pains in the back and limbs, restlessness and other urgent symptoms. He was bled to the amount of sixteen ounces, took a cathartic which had its full effect, and he appeared to be relieved; was left on an alterative course of antimonials, and generally the antiphlogistic regimen was enforced. On Tuesday his symptoms were more urgent; was let bleed again; blood strongly buffed and cupped. Fifth day; had a consultation with Dr. Bartlett; main course of medicines continued; bleeding repeated; blister applied to left side of thorax, which drew well and discharged well; cathartic of senna and epsom salts; free discharges of a bilious porraceous appearance; inflammation appeared to have reached the liver, and the mental functions were occasionally disturbed and symptoms of meningitis showed themselves. Sixth day; bleeding repeated and the antimonial course continued; large blisters applied over the whole thorax; from this time to the fatal termination of the case little change was made in the treatment. On the ninth day the

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disease showed symptoms of having reached the heart and all hopes of recovery were at an end.

On a post-mortem examination the following appearances presented themselves: Pleura-costalis inflamed very extensively, as was also the pleura-pulmonalis. The lungs were of a dark damson color. The bronchia were crammed with blood and presented that appearance which writers call hepatization. The pericardium was inflamed and slight effusion of lymph had taken place within it. Coronary vessels of the heart very turgid, and the substance of the heart showed a similar color to that of the lungs. Peritoneal coat of the intestines highly inflamed, as was that of the stomach, liver and kidneys. The mucous membrane of the stomach showed large and small sublived patches of effused blood raised above the general surface of the membrane. The head was not examined, as the friends rather declined it. On the whole the case was one of more general distributive inflammation than has fallen to my lot to witness upon autopsical examination. Yours Respectfully,

THOMAS WHIPPLE, JR., M. D.

To Thomas Whipple, M. D., Canandaigua, N. Y.

Dr. Whipple was with the deceased ten nights and ten days, and Dr. Bartlett was with him three nights.

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CHOREA.

FRANCIS R. BLANCHARD, M. D.,
Lakeview.

As regards the pathology and morbid anatomy of chorea, there are nearly as many theories as there are writers upon the subject.

In an analysis of one hundred (100) cases, Dr. Hughes cites fourteen (14) fatal cases. In all but four of these there was intra-cranial congestion with other structural changes such as softenings, opacities, and adhesions. The spinal cord was not examined in six cases. Of the remaining eight it was healthy in three, and congested, softened, or with adhesions or opacities of the membranes in the remaining five.

Dr. Senhouse Kirkes has published several articles trying to prove an association between rheumatism and chorea; and he made this prediction: "Future experiences will still more positively demonstrate that an affection of the left valves of the heart with the presence of granular degeneration upon them is an almost invariable attendant upon chorea, under whatever circumstances the chorea may be developed."

Dr. William A. Hammond says: "As the result of our present knowledge of the morbid anatomy of chorea, while it cannot be said that we are able to define its seat with accuracy, we have strong evidence to support the view that it is not a neurosis or functional affection—if indeed there are any such—but that it is the result of changes taking place in the cerebro-spinal system."

Dr. Hughlings Jackson's theory is, that it is like epilepsy, the result of "discharging lesions" of the cortical matter of the cerebrum.

Dr. H. C. Wood, of the University of Pennsylvania, in an article published in the Journal of Nervous and Mental

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Diseases, advanced the theory that chorea depends upon a condition of depression or exhaustion of the motor and inhibitory functions of the spinal cord.

There are many more authorities which I might quote, but will not take the time. From my own limited observation I am inclined to accept Hammond's theory that chorea is due "to the result of changes taking place in the cerebro-spinal system." What those changes are I am not prepared to say.

The causes of chorea are varied. Of the four cases which I shall relate later one was a result of anæmia and overstudy, one followed abortion and subinvolution, one a sequel of scarlatina, and the other seemed to be idiopathic. In none of them was there any association with rheumatism or disease of the heart.

Duckworth seeks to prove that rheumatism acting on a nervous subject is the principal cause of chorea. A long discussion, with no satisfactory results, took place at the Boston Society for Medical Improvement between Webber, Morton, Prince, Bullard, Putnam, Jeffries and others. This discussion, published in the Boston Medical and Surgical Journal in December, '91, leaves us without any more knowledge as to the cause of chorea than we had before. Among the exciting causes those connected with the emotions occupy first place. Among other causes bad hygienic influences and exhausting diseases generally are to be mentioned.

The treatment for chorea is as varied as are the causes. Diseases which terminate fatally and those which ordinarily recover without medical treatment are very sure to have a great many medicines used in their therapeutics, and to this class chorea belongs. Nearly every remedy in the materia medica has been tried, and nearly every one has some advocate who claims for it some quality superior to all others. Among the drugs arsenic stands at the head and has been used more than all others.

H. C. Wood, in a clinical lecture before the medical class of the University of Pennsylvania, exhibited two patients cured by the administration of quinine, claiming that it is a stimulant to the inhibitory centres.

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Antipyrin was at one time a very popular remedy, and exalgin is claimed by some to be a specific. And in these days when there is such a tendency in the public mind toward something mysterious, the treatment by suggestion or hypnotism, comes in for a share.

My own treatment for chorea is the result of a suggestion by my preceptor, Dr. Forsyth of Lakeview, that is, the use of arsenic and hyoscyamus alternately. I use arsenic in the form of Fowler's solution, the initial dose being one to four drops, according to the age of the patient, giving it after meals well reduced with water, increasing the dose one drop a day until the maximum is reached. After using it one week I discontinue it, and give hyoscyamus one week, and then return again to the arsenic, beginning with the dose reached the previous week, and so on alternately until the case is well. I will now give a few illustrative cases.

CASE 1. On June 15, '92, Mrs. K. consulted me in regard to her daughter Lepha, age 20, with the following history: Three years previous while attending school she had noticed twitchings of the muscles of the upper extremities and face, especially after prolonged mental strain; these symptoms becoming aggravated, a physician was called who pronounced the trouble chorea and advised her to leave school. At the time I saw her she had been treating continuously for the three years with no improvement. Upon examination I found the following conditions: Patient suffering from marked choreic movements of muscles of upper extremities and face, mental faculties very much impaired, menses had stopped entirely two years previous, general appearance anæmic, family history good. I diagnosed her trouble as chorea caused by over study and anæmia. I put her upon the arsenic and hyoscyamus treatment, with instructions to take plenty of outdoor exercise, such as rowing, horseback riding and walking. I continued this treatment until January 14, '93, a period of just seven months, when she passed out of my hands. At that time her condition was much improved. The choreic movements were nearly absent, menses had

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returned and were regular, mental condition much improved, and she had planned to return to school in April.

CASE 2. Ida A., age 18, came to me January 20, '93, with choreic movements of muscles of upper extremities and face, general appearance of perfect health, family history good, could find nothing definite as a cause.

I prescribed the arsenic and hyoscyamus treatment, which she continued until August 29 following, when I discharged her perfectly well. This case subsequently had a sad ending, as I find in following up the history of the case. She was married and became pregnant. In the fifth month of her pregnancy the chorea returned in a violent form and she died in one week, probably from exhaustion.

CASE 3. Mrs. H., age 21, consulted me July 26, '93, for choreic movements of left leg. There was constant jerking of the limb whenever she was resting. She stated that when very tired the leg would jerk so hard that it felt as if it was unjointed at the hip. Patellar reflex was much exaggerated. About three months previously I had treated her for subinvolution of the uterus, following an abortion at the second month, which she had produced by introducing a catheter. I diagnosed her trouble as chorea as a probable result of the former trouble. I prescribed the arsenic and hyoscyamus treatment, which she continued until the following October, when I discharged her. I have seen her quite frequently since and there has been no recurrence of the trouble.

CASE 4. January 17, '96, Mrs. G. consulted me in regard to her daughter Alice, age 11, who was suffering from choreic movements of both extremities of left side and face. She gave a history of having had a short time before an eruptive fever which lasted four or five days. It was so light that a physician was not called. This was followed shortly by bloating and peeling of the skin. I diagnosed her trouble as chorea, hemichorea if you like, as a result probably of scarlet fever. As she was attending school I advised her mother to take her home and give her plenty of outdoor exercise. I prescribed the arsenic and hyoscyamus treatment. Discharged her April 1st entirely well.

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PRACTICAL POINTS REGARDING ALBUMINURIA.

DAVID INGLIS, M. D.,

Detroit.

A few months ago my friend Dr. Dwyer asked me to see a lady who gave a history as follows; For three years she had been troubled with a curious sensation at the epigastrun which she described as if a bubble grew larger and larger and more painful as it increased until it seemed to burst when pain at once ceased. This occurred at regular intervals. Three weeks before I saw her one of these attacks occurred, but the pain instead of ceasing persisted for several hours, and there developed a characteristic gastritis, intense nausea, thirst, constant pain, vomiting, fever of fluctuating type, and increasing bodily depression. Examination showed a hard, distinct small tumor in the region of the gall bladder which was very sensitive to touch, and at this point so much pain was developed when the patient tried to lie on her right side, that she was unable to keep this posture.

The patient was put upon rectal alimentation, inunction of oil, and attempts made to allay the extreme irritability of the gastric mucous membrane. A diagnosis was made of accumulation of gall stones, complicated by an acute gastritis. As the patient grew worse rather than better, Dr. McGraw was called in to decide upon the advisability of operation. He pronounced the case one of gastro-duodenitis, with inflammation of the common bile duct, and deemed operation unnecessary.

The case progressed steadily downward. All attempts at giving nutrition or even water by the stomach, proved useless, the rectum becoming irritated rendered rectal alimentation

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almost useless, the patient became totally blind from what we usually term albuminuric retinitis; the quantity of urine progressively decreased until totally suppressed, and the patient died in uræmic coma. And yet from beginning to end the urine never showed a trace of albumin.

This case serves very clearly to show that the abuminuria has, in itself, no part in the causation of the dangerous symptoms of the various forms of Bright's disease.

The train of events in our patient was clearly this: She probably had had for years a lot of gall stones, none of which had ever passed down. She developed an acute gastro-duodenitis with inflammation of the gall duct and gall bladder. It became impossible to give either by stomach or rectum enough water to enable the kidneys to excrete the necessary urinary salts; every symptom of uræmic poisoning followed from their retention, but it happened that the kidneys themselves were not irritated—they simply ceased work for want of water. She had no albuminiria, but nevertheless died of uræmic poisoning.

The problem in every case of valvular heart disease is not settled when we have decided that this valve or that is obstructed or defective. That is a trifle. The real problem is how has the heart accommodated itself to the defect; in short, how well can the heart pump? The problem in every case of Bright's disease is not whether albumin is present or not, but how well can the kidneys keep the blood free from accumulation of urinary poisons.

It is a common remark when two physicians are discussing a case of nephritis to hear, "there is only a trace of albumin," or "the albumin is abundant." These are good things to know, but it is a good deal better to know what is the total amount of urine excreted every twenty-four hours and what is the average specific gravity.

By the way, this matter of specific gravity deserves a word. Life insurance examinations all require a statement of the specific gravity of the specimen of urine examined. Such a statement is of practically no value simply for the reason that the specific gravity of the urine of every individual varies

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widely every day. I have repeatedly found, in the same individual, a variation from one thousand and fourteen to one thousand and thirty-six in a single twenty-four hours. The specific gravity of any one specimen tells nothing. It is only by obtaining the specific gravity of the collected urine of twenty-four hours that we can form a fair idea of the actual excretion of the kidneys.

In actual practice, were I to be limited to only one way of telling how my case of Brights' disease was getting on, I would be better informed and my patient would be safer if I knew from day to day the total amount of urine excreted and its specific gravity, and never made a test for albumin, than if I watched the albumin from day to day and failed to know accurately the quantity or specific gravity of the urine. Quantity and specific gravity together would tell me how my patient was. Albumin might tell me the condition of the kidneys or of a part of one kidney. The condition of my patient is the vital question. The condition of a little patch of one kidney may be of trifling importance. And it needs only a localized defect in one kidney to keep up a very persistent albuminuria.

I know a well-known physician in the state who has had albuminuria, with pus formation, for some eighteen years, who has long since ceased to worry over his albuminuria, for he has worked hard and steadily and enjoyed health much above the average.

When he dies, if that happens to be before me, which seems unlikely, I should like to hunt up the little hardened scar on one kidney and see the thing which worried us both when we were young and timorous doctors together.

While I thus emphasize the value of careful study of other signs I do not wish to seem to undervalue the significance of the presence of albumin. A physician who overlooked a valvular defect or who misinterpreted the character of the defect would be a very unsafe medical adviser. As far as the life of the patient is concerned it is a question how can the heart pump, but the medical man who fails to accurately judge of the nature of the valvular trouble and the state of the heart

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and blood vessels can very materially lessen the ability of the heart to keep on pumping. So in a case of Bright's disease. The early recognition of albuminuria is an invaluable guide to the physicisn. A failure to recognize the presence of albumin may be even more disastrous than a failure to recognize a valvular defect, more disastrous because cardiac defects are much more likely to cause symptoms which warn the patient than is the case with renal defects. The renal difficulty may have progressed to a dangerous point before the patient suspects any kidney trouble, indeed may never suspect it at all.

The matter of testing for albumin is so simple that I cannot comprehend why physicians do not make the analysis as a routine in every case.

I presume the case must be a rare one in which a physician examining a patient for the first time fails to ask the patient to put out the tongue, or fails to count the pulse. What a trivial piece of information the appearance of the tongue gives compared with the results of testing the urine! What is the pulse rate, varying with every emotion, a little haste, a recent full meal, compared with the white line of albumin. The presence of that white line is vital, the coated tongue or the quick pulse is of varying significance. The surgeon who fails to be assured about that white line before operating may vitiate the result of the most carefully planned and skillfully executed operation. A surgeon who neglects to make a urinalysis before every operation adds an unnecessary danger to the patient's life and his own reputation. But a physician who undertakes a new case and similarly neglects urinalysis does precisely the same thing.

One thing as to the testing for albumin experience has shown to be useful. It is this: The attempt to *pour* urine into a test tube in such a way as to form a distinct layer upon the cold nitric acid is usually a failure. It is true that when a large percentage of albumin is present a mingling of urine with the acid does not vitiate the test. When small in amount, however, the albumin will not be discovered.

I told an applicant for insurance that he was not insurable, as he had albuminuria, and referred him to his own physician.

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Shortly after he returned with the somewhat indignant statement that his physician told him that he had no albuminuria. Thereupon we marched back to his physician. A little cold nitric acid, a pipette and a little fresh urine showed a fine, clear-cut white line. *Poured* into the test tube, the nitric acid had redissolved the albumin; carefully put on top of the nitric acid in a slow stream from the fine point of the glass tube there could be no mistake. The doctor's only remark was, "Well, I never did it that way before." The *way* is everything.

One thing more; albumin only precipitates on boiling from urine which is *nearly neutral.* Strongly acid or strongly alkaline urine may contain a large amount of albumin and yet remain clear and pellucid on boiling.

Take urine which is known to contain abundant albumin, add to a dram one drop of nitric acid, three drops of strong acetic or citric or hydrochloric acid, and on boiling there will be no reaction; further the addition of liquor potassæ will similarly prevent coagulation.

I am satisfied that many a gouty patient has been pronounced free from renal affection because his highly acid urine remained clear on boiling, while his kidneys have been shrinking and growing less and less competent. The neutralization of the acidity would prevent such an error.

I have presented these minor points not because of their novelty but simply as my contribution to that exchange of personal experience and practical suggestion which makes our meetings with one another helpful.

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DIPHTHERITIC ENTERITIS, WITH A REPORT OF TWO CASES.

MARY C. SMITH, M. D.,
Grand Rapids.

It was with much pleasure, yet some hesitancy, that I ventured to respond in the affirmative to the honorable secretary of this section who so kindly invited me to help him fill out his appointments. I questioned myself if I had a place among this intellectual army of distinguished men and women. I trust that my brief paper may prove of some small interest. Diphtheria is a subject that has always been of extreme importance in medicine, but of late has received much more attention than formerly. Many very able articles and valuable reports are to be found; however, in my researches I found very little literature on this particular branch of the subject. A few lines are devoted to it in Barthez & Sauney, Maladies des Enfants—volume 3, page 536. Henoch—Vorlesungen uber Kinderkrankheiten—page 515, reports two cases which he evidently considers diphtheritic. J. Lewis Smith reports two cases in Keating, volume 1, page 624.

Diphtheritic enteritis is an acute infectious disease of the intestines, the exciting cause being the Klebs Loeffler bacillus. The different forms of enteritis do not differ essentially. You may have high temperature, bloody mucous stools, expulsion of membrane, albuminuria, casts, and even infection. These symptoms and features are common to several varieties of enteritis, dysentery and diarrhœa; hence essentially the same symptoms may exist, with quite a diversity of lesions. The pathology of this class of diseases is not well understood, and is decidedly confusing. The only satisfactory diagnosis or

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classification is by bacteriology. We do not always want to wait for an autopsy before being able to diagnose, hence must be able to satisfy ourselves by experimental bacteriology on the products eliminated.

On December 18th, 1895, I was called to see Glenn W., aged 12 years. Clinical history: boy complained of sore throat, nausea, headache and pain in the bowels. Inspection of the throat revealed tonsils and peritonsillar tissues, pharynx and fauces hyperæmic. Examination of the body showed the area of hepatic dullness increased and the spleen somewhat enlarged. Over the ascending colon the abdomen was very tender, the boy flinching when I attempted to palpate. There was no tympanites. Examination of the urine; strongly acid, specific gravity 1028, containing casts and albumen. Temperature 103.2, pulse 126, respiration 34. The mother was very anxious about the throat symptom as some few days previous her neighbor, who lived about 10 feet away, had lost a child with what was pronounced diphtheria. The bed clothing under and upon which the child had lain had been suspended on a line in the back yard, and the boy had been playing close by. I could not call the disease diphtheria from the clinical symptoms, and yet the condition of the urine caused me to suspect that it was.

Bacteriological examination: Cover glass smear showed a few typical Klebs-Loeffler bacilli. Tubes and plates showed colonies of Klebs-Loeffler bacilli. I replated a colony, and from this new growth inocculated a bouillon tube. From this I inocculated a dove in the fauces after first irritating the fauces with capsicun. I had death of the dove within fifty-four hours I made a culture from the lesion in the dove's throat and again found the characteristic bacilli.

Treatment: Isolation of the patient; warm bath daily; bed linen changed twice daily; bed carbolized; thorough ventilation of the apartments; three quarts of sterilized milk and lime water during twenty-four hours; calomel one-tenth grain every hour until free catharsis; chloride of iron internally and the throat sprayed with bichloride of mercury one to two thousand, and bold general stimulation with good brandy.

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December 19th, temperature 103, pulse 126, respiration 32. December 20th, temperature 103, pulse 126, respiration 32; throat unchanged. December 21st, bowels moved four times during the night, color of the stools green and brown, temperature 102.8, pulse 104, respiration 32. December 22d, complains of severe pain in the bowels; nausea, delirium; could not retain anything on his stomach; stopped all medication and ordered turpentine stupes. December 23d, condition unchanged. December 24th, nausea subsiding; bowels moved freely, green color; perspires freely; temperature 101, pulse 118, respiration 28; urine albuminous with granular and hyaline casts. December 25th, symptoms somewhat improved. December 26th, not so well; bowels pain him severely; quite tympanitic and much flatus; ordered turpentine enema. December 27th, temperature 103.2, pulse 136, respiration 34; delirious during the night; cold bath ordered. December 28th, condition slightly improved; baths continued. December 29th, slight improvement in temperature. December 30th, temperature 101, pulse 120, respiration 28; ordered baths stopped. December 31st, expelled cast per rectum, two-thirds foot in length. Bacterial examination showed Klebs-Loeffler bacillus on cover glass smear and in tube and plate culture; scarified the throats of three doves and inoculated pure culture; membrane occurred at point of inoculation; bacterial examination showed Klebs-Loeffler bacillus; two of those doves died within five days and one lived, but was unable to fly for about six weeks, showing paralysis of the wings.

January 1st Dr. G. K. Johnson was called in consultation. Jan. 2nd, patient dull and listless, temperature 101, pulse 120, respiration 28. Jan. 3rd, expelled shreds of membrane, mucous and blood. Jan. 4th, no change and Jan. 5th, the same, no change. Jan. 6th, temperature 100, pulse 116, respiration 26. Jan. 7th, unchanged. Jan. 8th, bowels very tympanitic, a great deal of distress but no tenesmus; patient very restless. Jan. 9th, unchanged. Jan. 10th, Dr. G. K. Johnson was again called as counsel. Jan. 11th, condition unchanged; 12th, unchanged; 13th, unchanged. Jan. 14th, patient be-

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gins to take an interest in his surroundings and seems brighter. Jan. 15th, patient remained about the same for five or six days, membrane gradually disappeared from the stool; the mucous and blood lasted for about fourteen weeks.

The treatment was simple, consisting in the main of nutritious and easily digested food, stimulants. Takadiastase was given for about eight weeks to aid intestinal digestion; then malt extract, pancreatin, etc. The turpentine enemas were used at intervals and the turpentine stoups about five weeks. The salicylates were also used and after the diarrhœa ceased constipation was the most prominent symptom. This was relieved by enemas of olive oil and gentle massage. Tenesmus was absent throughout the disease. After the acute stage had passed, his pulse and temperature were both sub-normal between 11 p. m. and 3 a. m. At the present time the patient is in fairly good condition with the exception of slight paralysis in the flexors of the lower extremities.

CASE II. Personal history: Gertrude B., aged five years; female; recovery.

The family history of the child I could not obtain, as she was an adopted child. She was well developed and well nourished; never had had any serious sickness, and never had had any bowel trouble. First seen by me February 11th, 1896. The mother said she had been exposed to scarlatina. The day previous to the one on which she had called me the mother had given the child a warm bath and had immediately after taken her for a ride on a hand sled. After returning from the ride she noticed the child seemed feverish; did not call a physician until the following day.

Clinical history: Examination of the throat gave negative results, likewise the lungs, heart and liver; spleen enlarged, although not to a great extent; bowels tympanitic and very tender over the descending colon; skin hot and dry; lips were dry and withered. Temperature was one hundred and three, respiration thirty-six, pulse one hundred and thirty-six. Examination of the urine: Color, dark red; strongly acid, containing albumen, casts and excessive urea; bowels constipated. Skin was perfectly free from any rash and the tongue

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was somewhat brown in color; nevertheless, I reported the case scarlatina from the history and awaited the classical symptoms, which, unfortunately, did not appear.

Treatment: Calomel, one-quarter grain every hour until free catharsis; poultices of digitalis to the back; warm baths; thorough ventilation of the apartments and isolation of the patient; diet, milk and lime water. February 12th, temperature 102.4, pulse 130, respiration 32; urine lighter colored and not so scanty; bowels moved three times in twelve hours; color of the stools green and brown, very offensive; treatment continued. February 13th; expelled membrane from the bowels which appeared to come from the colon; bowels very active; stools consisting of blood, mucous and membrane. Stopped the calomel and ordered turpentine stupes. Bold general stimulation, and the consent of the parents having been obtained, I injected into the gluteal region one thousand antitoxin units of the No. 2 bottle of P. D. & Co. antitoxin. Bacteriological examination of the membrane revealed the presence of the Klebs-Loeffler bacilli. Inoculating three doves with this, as in case No. 1, I succeeded in producing a membrane at the seat of inoculation. Cultures from this in turn revealed the bacilli.

Treatment. General stimulation; irrigation of the bowels with warm sterilized water, in which was suspended some subnitrate of bismuth. The bismuth appeared to bind the hydrogen sulphide, which was a cause of peristalsis; also prevented the reflex effect of the ulcers and, of course, relieved diarrhœa somewhat. Once a week one large dose of sodium sulphate was given. This caused a profuse excretion of fluids from the digestive mucous membrane without affecting the muscular layer of the intestines. About five hundred antitoxin units were injected every three days for nine days; chloride of iron, takadiastase, malt extract and turpentine stupes were also given. The diet was highly nutritious, consisting of milk and cream, egg albumin, extract of beef, etc. The temperature remained between 96 and 101 for nine weeks, pulse between 66 and 120 for the same period, respiration being nearly normal. At the present

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time the bowels are obstinately constipated and the left leg is paralyzed. She is also unable to flex the left hand, or to raise herself from a sitting position. The treatment at present is gentle massage, warm olive oil enemas, small doses of strychnia and faradism.

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ERB'S PRIMARY MUSCULAR ATROPHY.

Report of Two Cases, with Photographs.

E. S. PETTYJOHN, M. D.,
Alma.

Since Duchenne first described progressive muscular atrophy in adults and infants and regarded *each* form as of *peripheral* origin, the study of the clinical history and pathology of muscular dystrophies has only partially decided which are of muscular and which of spinal origin.

We now believe that the hereditary form found during infancy and early life, especially if it attacks several members of the same family, is of muscular origin, and certainly so if there are present post mortem hypertrophied muscular fibers, side by side with atrophied and degenerated muscular fibers, and with no changes in the anterior horns of gray matter of the cord or in the nuclei of the fourth ventricle or aqueductus sylvii.

One chief reason for considering this much talked about disease is the desire to establish a definite symptomatology, to accomplish a differential diagnosis and arrive at the rational treatment for the benefit of the patient rather than to originate classifications.

Idiopathic muscular atrophy is primarily a disease of childhood and youth and usually develops before the age of 20. It is more frequent in males than females, probably due to transmission through the mother, though she herself is exempt, as the son usually inherits the peculiarities of the mother and the daughter those of the father. In this way it

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is hereditary (in three-fourths of the cases) and often appears in several members of the same family, but usually of the same type in the different members of the same family. The onset of the disease is gradual and the atrophy and weakness progress simultaneously with or without any initial hypertrophy.

In the parts affected the disease slowly increases and thence spreads. The shoulder girdle is usually first affected, that is, the pectorals, the trapezii, rhomboidii, latissimus dorsi, the upper arm muscles and the supinators and later the forearms, glutei, thighs and legs. The patient is often unaware of the wasting of these muscles on account of their relative unimportance. The deltoids are rarely involved and the serratus magnus often escapes noticeable changes.

On electrical examination the irritability of the affected muscles is usually lessened on the use of either current and either pole out of proportion to the atrophy present. There is not present the typical reaction of degeneration; however, the action is not purely normal. Were we to divide the *reaction* of *degeneration* into three stages they might be designated simple atrophy, atrophy with muscular-cell proliferation, and atrophy with muscular cirrhosis. The reaction found in this disease would be that of the first mentioned stage. Fibrillary twitchings are absent, though not invariably, and the sensibility to the faradic current and heat and cold is usually unimpaired.

The absence of nerve irritation alone would seem to prove the atrophy to have begun in the *end organs* of the nerve, and *also* the *nerve* itself. Implication of the nerve is shown by the increased action of the muscles when the electrode is placed over the motor point, as compared with the reaction obtained when placed over the muscles. The reflexes are weakened or lost, never increased. The sphincters are not affected. The disease is painless.

Aside from hereditary, acute febrile diseases, especially scarlatina and diphtheria, and over exertion, lack of good food and exposure to vicissitudes of the weather undoubtedly enter into the etiology. The course and duration (from 10 to 30

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years) of the disease are exceedingly variable but can undoubtedly be influenced by treatment. Death usually occurs from some intercurrent disease. The treatment in its prophylactic form should include the prohibition of marriage of one so afflicted, or of bringing into the world other children by parents the physical *combination* of whom produced such dystrophies. Infants of such mothers should be reared by a wet nurse or artificial feeding. All children of families where disease exists in one member should be reared *hygienically* with every effort to increase and develop the muscles of the body symmetrically.

The active treatment should combine every useful agency to prevent nutritional deterioration of the skin, the muscles, and the nerves supplying them. The cleansing of the skin and mild elimination therefrom has been shown to increase the assimilation and nutrition of the underlying muscles. Fomentations, followed by cold sprays, stimulate to greater activity the circulation of the part. Light friction continued for a considerable length of time and frequently repeated, especially with camphor liniment, increases the cutaneous nutrition.

For the muscles themselves methodical graduate exercise with or without apparatus (never tiring the muscle) will increase their nutrition. In addition to this *massage*, skillfully used by the hand of an operator who understands the anatomy of the part and can *select* the various groups of affected muscles for treatment, is a most excellent aid to increasing the nutrition of the muscle. The used up and degenerate tissue of the muscle is forced into the circulation, the blood vessels and lymphatics are emptied of the already accumulated debris and new material is brought to increase every elemental part. This treatment should be given twice daily, gradually increasing the force and time occupied. Electrization of the affected muscles and those in the immediate region, especially with the semisoidal current, should be practiced daily. This should be done in an especial manner to *every affected* muscle. The current ought never to be

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strong nor continued until the sensibility is greatly increased. The current in use should rather be diminished than increased. One or two minutes should be allowed to each muscle when the current should be distributed over several muscles; the entire seance lasting only from fifteen to twenty minutes, depending upon the area of the muscles affected.

The static current to the spine and alternating hot fomentations and ice to the spine, to stimulate the nerve centres supplying the affected groups of muscles, augments the innervation and increases the nutrition.

The very best internal remedy is, in my opinion, plenty of wholesome, nourishing food; a generous mixed diet combined with long hours of rest in bed and prolonged undisturbed sleep. Strychnia preparations combined with quinine are the best tonics. As the hæmoglobin and the number of blood corpuscles are neither diminished, iron is not especially indicated.

I hereby report a case in point. About two years ago Daniel L. presented himself at the sanitarium and gave the following history: Age 19, son of a farmer, one of seven children all in good health at the time. No neurotic hereditary; father died at 45 of some stomach disease; mother living in good health. Family history good. At nine years of age had scarlatina and made an uneventful and complete recovery. At the age of fifteen he did a hard days work, carrying heavy bags and pitching bundles. No immediate effects were noticed but a month afterward he began to notice great weakness in the muscles of the chest, shoulders and arms. Some time after this these muscles began to atrophy. For the six months previous to my first observation the case had grown rapidly worse. During this time he complained of being very weak and tired after very moderate effort. The family called him lazy, much to his discomfort. While in swimming his companions noticed the wing-like projection of the scapulæ. He gradually grew weaker, so that he was hardly able to do milking. On examination the entire shoulder girdle was found affected: The upper intercostals and pectorals were so weak-

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ened that the breathing was largely diaphragmatic. The expansion at the nipple line 37 inches, just below the sternum 40½ inches, when the arms are at the side the scapulæ project so that two hands could be lain between them and not seen on the line across. The trapezii, rhomboidii, lattisimums dorsi, biceps and triceps were all affected, the *left side* more atrophied than the right. The forearms and hands were not noticeably changed or weakened, although the hands seem large by contrast. He could not put either hand on the top of the head without the momentum of a swinging action for several seconds. On trying to lift him from the floor by placing the hands in the arm pits the shoulders were raised nearly to the ears. He walked like one with a lame back. The patellar reflexes were entirely absent, but there was no incoordination standing. There were no muscular vibrations, convulsive twitchings, or momentary tremors such as are often found in progressive paralysis. The sensibility to heat, cold and cutaneous irritation were unimpaired, though the superficial temperature slightly lowered, especially in the arms and hands. On electrical examination the irritability of the affected muscles was lessened generally; but the increased action of the muscles on both cathodal and anodal opening and closing was more marked when the electrode was placed directly over the motor point. The pupils responded to light and accommodation. The patient was not especially intelligent, his mental actions being sluggish, though his judgment was firm and his emotions under control. After six months treatment on the plans hereinbefore mentioned, the patient has gained 26 pounds in weight, the superficial temperature of the affected muscles is normal, there is increased strength in the muscles, and so far as can be discovered no atrophy in the previously unaffected parts.

A few weeks ago a younger brother, a boy of 11 years, was brought to me and on examination was found to be afflicted in the same way but in lesser degree, the commencement unknown. There is true atrophy and a minimum amount of adipose tissue along with stunted growth for the child's age.

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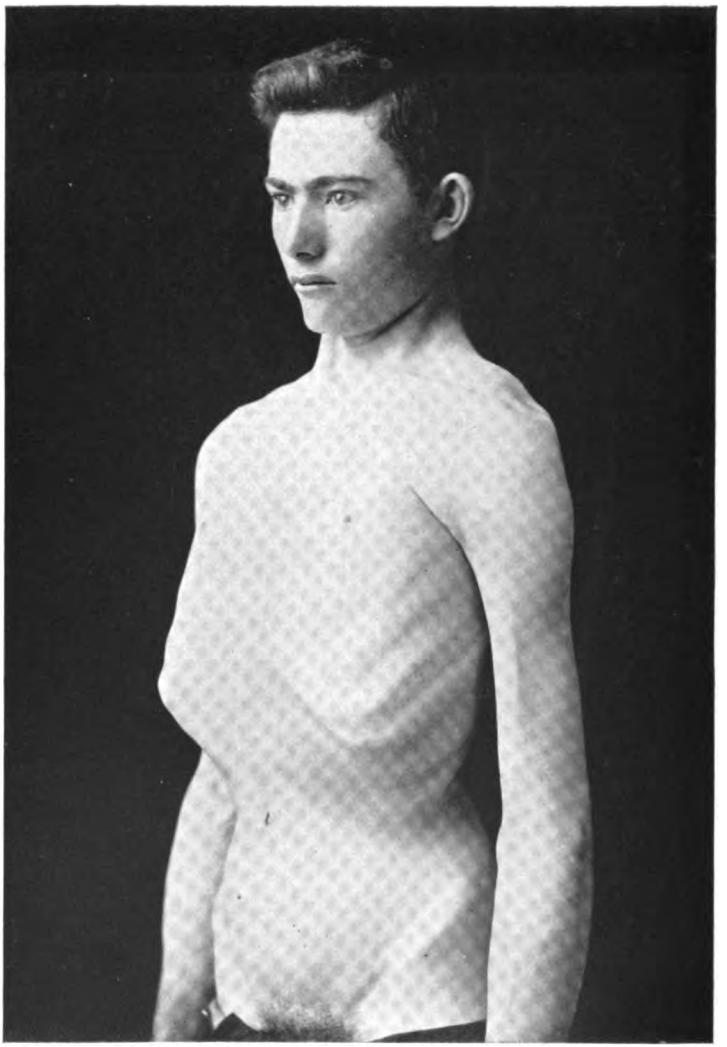

Expansion nipple line 37 inches. Expansion just below sternum 40½ inches.

Wasting pectorales of deltoid and biceps.
Drawing up of upper angles of scapulæ by levator anguli scapulæ and upper portion trapezius by absence of opposition.
Deep inspiration, holding breath.

Dr. E. S. Pettyjohn—Case 1.

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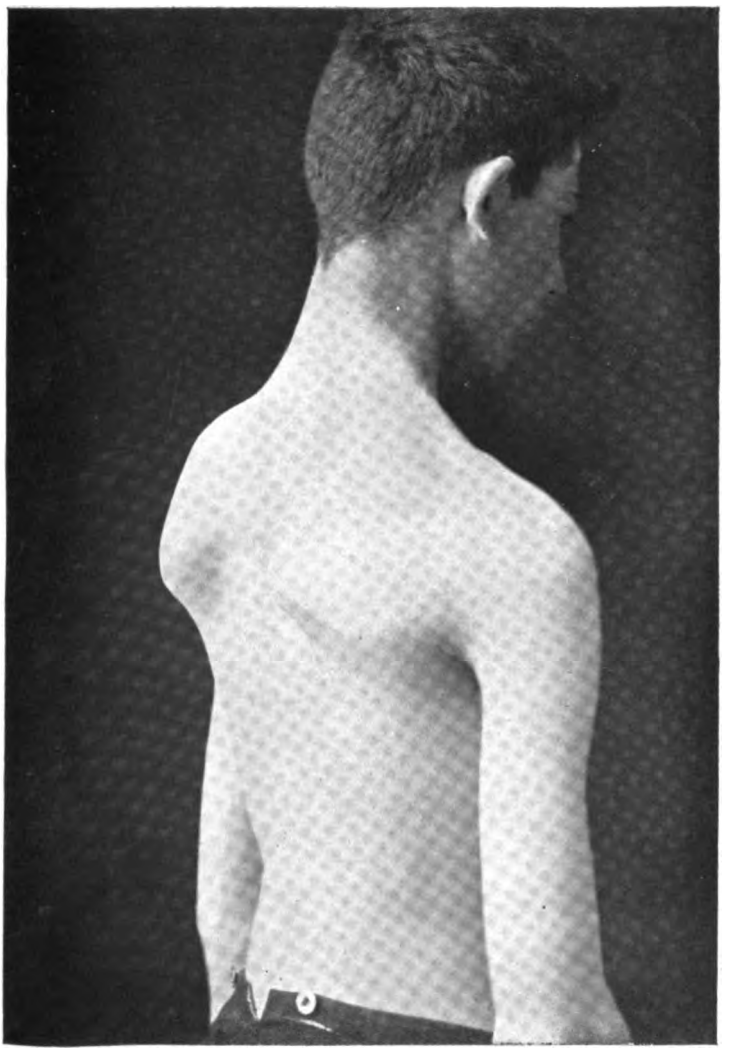

Erb's Muscular Atrophy, Atrophy Trapezii, wing-like projection of scapulæ on account of atrophy. Age 22 yrs. Began at 14 yrs.
Dr. E. S. Pettyjohn—Case 1.

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May 1, 1896. The patient reported has not grown especially weaker, and the good fibres of the muscles increased somewhat in strength. The electrical reactions and other physical signs remain about the same. His general nutrition has increased somewhat during the past year and there has been no further noticeable involvement of muscles.

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EXOPHTHALMIC GOITRE, WITH REPORT OF SIX CASES.

RALPH H. SPENCER, M. D.,
Grand Rapids, Mich.

During the past five years I have had my attention particularly called to the study of that obscure and little understood disease known and described as exophthalmic goitre.

It is not that I have much that is new to offer as to treatment, but I wish to record my cases and also endorse what has been written by others. From the frequency with which I have met the disease I am led to think that it is more common than formerly, consequently should receive our attention. Dr. Robert J. Graves, who was the first to describe the disease, in a work written by him in 1843 (System Clinical Medicine, Dublin, 1843), says that the enlargement of the thyroid seems "to be essentially different from goitre or bronchocele in not attaining a size at all equal to that of the later disease, and seldom amounts to serious deformity." Writers on the subject since have only confirmed the observations made by Dr. Graves, viz., that the rapid pulse, exophthalmos and nervous symptoms often precede the development of goitre. It is not my purpose to dwell long upon the symptoms of a disease with which you are all so familiar, but simply to impress upon you that what I have to say in this paper is confined strictly to exophthalmic goitre and its attending nervous phenomena. I find that many writers seem inclined to confuse this disease with bronchocele.

ETIOLOGY.

Though there are certain districts where goitre is endemic I am not aware that the disease now under consideration is prevalent there; it more often appears in places where true

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goitre is comparatively rare. It is more common between the ages of twenty and thirty, though occasionally seen in those younger or older. Judging from the observations of many writers it would seem to attack eighty per cent. more females than males. In eighteen years practice I have seen but one case in the male. It has been the opinion of observers that the disease is more dangerous and rapidly fatal in men than women. It has been my observation that the disease develops rapidly, that there is generally a history of some preceding cause of debility, as continued hemorrhage and diarrhœa, excessive fatigue from overwork, mental or physical. There are a large number of cases on record which have developed suddenly after extreme mental excitement, exertion, or shock. One case developed rapidly after severe labor in which the woman gave birth to a monster, the mother suffering disappointment and shock. It is evident from the above, also from the many recorded cases, that nervous affections are particularly liable to give rise to exophthalmic goitre, but that they can do so in a hitherto healthy person is extremely doubtful.

MORBID ANATOMY AND PATHOLOGY.

In my practice I have had but one death from Graves' disease, and was unable to get consent of relatives to an autopsy; for that reason I shall draw entirely on the observations of others for the pathological changes. John Hill Abram, M. D., in papers read before the Medical Institution of Liverpool, October 17th, 1895, says, "The older theories of Stokes and Graves (primary cardiac), Marshal and Taylor (pressure on nerves and vessels of neck), have long been abandoned. The sympathetic theory must I think be given up also. On closer examination it is found as Gowers points out, (Diseases of Nervous Symptom, Vol. 2, page 885), that this theory involves the assumption of a partial or two fold action, viz: a stimulating one upon the accelerating fibres of the heart, a paralyzing one upon the vasomoter fibres, a double barreled action, the probability of which is rather remote. Again if there were a sympathetic lesion we should expect dilatation of the pupils to be a common symptom, whereas it is rare."

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I have not seen a case in which the pupils were dilated. Moreover the sympathetic symptom in the neck has been found to be normal in the vast majority of the fatal cases. A more probable theory is one that locates the trouble in the central system, viz: the fourth ventricle. Increased vascularity, slight hemorrhages and abcesses have been reported; it has also been shown that division of the restiform body gives rise to symptoms closely resembling those of exophthalmic goitre. The most plausible theory and that accepted by a majority of the recent writers is the one which attributes the disease to a primary lesion of the thyroid gland. The symptoms of thyroidism bear a very close resemblance to those of exophthalmic goitre, as emaciation, sweating, rapid pulse, tremors and exophthalmos have all been observed. The prominence of the eyes I believe is due to a dilated condition of the blood vessels; there is no marked deposit of intraorbital fat; in fact, emaciation and anæmia of the orbital region is the condition found.

PROGNOSIS AND TREATMENT.

Prognosis should be very guarded in well marked cases. Little improvement has followed any treatment; while in mild cases some are restored to perfect health, others live for years, but are never strong and are subject to frequent relapses. With regard to treatment I will not take valuable time to rehearse all the drugs that have been suggested for the relief of this disease, but will briefly state that it has been the experience of most of the writers whom I have consulted, as well as my own, that drugs do very little if any good, if not positive harm. It has been my experience that the heart tonics such as digitalis, strophanthus, etc., do harm. Dr. Justin E. Emerson in a paper read before the Detroit Medical and Library Association December 16th, '96, speaks highly of cactus grandiflorus in exophthalmic goitre and says it regulates and strengthens the heart action. I have not yet tried it. During the past three years and since the visionary idea of animal extracts have crept into our therapeutics, dessicated thyroids have been largely prescribed for the relief of all forms of goitre. I have prescribed them in four cases with

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no other result than poisoning my patients, causing headaches and dizziness. Dr. E. Fletcher Ingals, of Chicago, reported before the Laryngological Association, June, 1895, fifty cases so treated, six by himself and the balance by others He says "that grains 6 represent one entire gland; the dose should begin with two grains thrice daily, increase to four or eight if necessary." An unpleasant symptom noticed by Dr. Ingals was the same above mentioned, viz., dizziness, trembling, nausea, showing that the thyroid products exert a powerful influence over the nervous and circulatory apparatus, and are not devoid of danger. Dr. Ingals quotes Taylor as reporting twenty-five cases treated with thyroids, with improvement in all but seven, but no cures, and Dr. Ingals reports *his* cases as still under treatment. Dr. E. L. Shurly of Detroit, who opened the discussion of above paper, reported that he had used the extract in some twenty cases with disappointing results.

An important paper was recently read before the Berlin Medical Society by Dr. Stabel on the above treatment in eighty-three cases. As reported in the Medical Press and Circular the writer states that these cases were treated partly by fresh glands and partly by tablets from the Dresden Hof Apotheke. Of the cases treated by the fresh glands, only twenty-five were brought forward, as only those cases that remained four weeks under treatment were made use of in the paper. For determining the size of goitre a measurement was made at the level of the vertebra prominens. The dangerous symptoms attributable to thyroid feeding were due to decomposition of the gland. Although the glands were employed fresh, in the warm weather changes set in very rapidly, and sometimes gastric disturbances were produced; these symptoms did not come on when a better means of preservation was adopted. Baumann has succeeded in isolating the active part of the thyroid substance, has found it associated with iodin, and given it the name of thyroidin. In all the twenty-five cases of feeding with fresh substance a positive result was obtained, but in almost all of them it was to the extent of considerable improvement. A cure or total

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disappearance of the goitre was only obtained in four cases. Two cases only could be considered as permanently cured; 8 per cent. of the cases therefore were cured, and 92 per cent. improved. The cases considered to be cured had remained well nine months. The amount of diminution in size brought about by treatment was not kept up after the treatment was stopped, but a gradual enlargement again took place.

A slight acceleration of the pulse was almost constant. In struma it was never necessary to stop the treatment on account of the increased pulse rate. Dangerous symptoms were never observed. In slighter cases, especially in young girls, a slight loss of weight was observed. A large number of cases were treated by tabloids when feeding with fresh substance was stopped, and in these the struma never increased in size in consequence of the change. In many a slow diminution took place. The result of the treatment by the Dresden tabloids were not so good as when the fresh extract was employed, the reason being that so large an amount could not be given without threatening symptoms supervening. Three tabloids was the maximum dose given in seven days, therefore only three grams of active substance could be given, whilst with the fresh substance five times as much could be given. The tabloids, in addition to being less active, had a much more unfavorable influence on the heart. The medicine had to be interrupted on account of the increased cardiac activity caused by them. Especially in chlorotic and neurasthenic girls threatening symptoms supervened; acute dilatation of the heart was never observed under these circumstances. If the heart's action was once accelerated, this effect was kept up for weeks together. The tablets ought not to be articles of trade; cases were increasing in which they had a disastrous effect. A man aged 50, who was taking them for obesity, was suddenly attacked with a psychosis with a delusion of persecution, and died in a few days with cerebral edema.

Dr. Ewald in the discussion said "A number of such cases had been described, especially in English literature. The majority of the observations were unfavorable. He himself

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had seen no good results. In his case related at the last meeting the symptoms returned in an exaggerated form, and the thyroidin was no longer of any use."

In my researches I find no other report of cases cured; a few report them only improved, and on the whole I am convinced that we are now witnessing the passing of dessiccated thyroid as a remedial measure. Thyroidectomy does not grow in favor with those who have resorted to the operation. Dr. A. J. McCosh reported before the surgical section of New York Academy of Medicine, May 13, 1895, a case operated upon by him in a girl of twenty years, in which other measures including galvanism had failed to relieve; the operation was exceedingly bloody so much so that after the operation the number of red corpuscles was fifty per cent. less than before. The right half of the thyroids was removed, the left half underwent shrinkage, patient gained in weight, and protrusion of the eyes diminished noticeably within twelve hours.

Dr. McCosh is of the opinion that twenty per cent. of the cases die of the operation, not from shock or sepsis, but from a condition due to thyroid poisoning resulting from manipulation in operating, and opening up of vessels. The symptoms were like those produced by overdose of thyroid extract, viz., cardiac and respiratory oppression, high temperature, ending in sudden death. Of cases which survived thyroidectomy about seventy-five per cent. were cured; of the remaining twenty-five per cent. about one-half were slightly benefited, the others not at all. In the light of above experience the operation should be resorted to only in extreme cases.

Like many others, having had indifferent results from therapeutical agents used in this disease, I have of late given up dependance upon them and resorted to electro-therapeutic treatment. In looking up authorities I find that for fifteen or twenty years past the treatment of exophthalmic goitre by the galvanic current has been generally growing in favor. Cardew, in London Lancet, July 4th, 1892, says: "Though in the less severe cases medical treatment has proved of value, it has seemed to me that in the more severe cases drugs have been almost useless." I have found the rules laid

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down by Cardew for the administration of electricity to produce satisfactory results, hence I have adhered to them with some trifling changes: (1) Galvanism is superior to faradism; (2) weak currents are sufficient, two or three milliamperes (I give more, ten or twenty); (3) each application should last six minutes, application should be made two or three times a day. The anode should be placed on the back of the neck over the seventh cervical vertebra; the cathode should be moved up and down the side of the neck, from the mastoid process along the course of the great nerves. I have also used it with the two poles pressed to either side of the goitre; also positive pole over the goitre, and the negative over solar plexus, continuing the current about five or six minutes in each place; the entire treatment lasting about fifteen minutes. After a nurse or any competent person has been trained they can administer the treatment, the doctor seeing the patient frequently. One's first experience is apt to be discouraging, as frequent relapses from various causes are sure to interrupt the recovery or improvement of the patient. The patients are neurotic and susceptible to trifling impressions; these are cases where patience and perseverance, both on the part of the physician and patient, are usually rewarded by marked improvement in nearly all cases, the symptoms gradually disappearing. Cardew states, and I am willing to bear him out, "that we have in electricity an agent powerful for good in the great majority of cases of Graves disease."

Such cases as fail to be benefited by it are, unfortunately, extremely unlikely to derive much benefit from any other therapeutical agent. It is cheaper than drugs, it can be left in the hands of the patient more safely than continued doses of digitalis and belladonna, and it can be continued a long time without doing harm should it fail in doing good.

REPORT OF CASES.

CASE 1. Called in the evening, Feb. 3rd, 1893; patient, girl aged 16, occupation student. Had been ill two or three days with what her family thought to be la grippe. Just before my call her symptoms became alarming. I found

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a pale, slender girl with large goitre and eyes that protruded nearly from their sockets, heart beating so tumultuously that the motion imparted to the chest-wall could be seen from across the room and its sounds heard at some distance from the patient. The pulse was 160 and the temperature 106 degrees; respiration, panting and rapid. Sedatives, belladonna and cannabis indica were given, and cool sponge bathing ordered; patient made no improvement, but on the contrary grew worse, temperature increased to 108 fahrenheit; she became delirious, and before midnight died from exhaustion induced by hyperpyrexia.

I was unable to get a good history of this case as she had not been regularly under the care of any physician. She had suffered from nervous symptoms, goitre and protruding eyes for two years before her death.

I was also unable to obtain consent of friends to an autopsy. This being the only fatal case I have seen, I report it to show what the symptoms are at the end of a fatal case.

CASE 2. In August, 1893, Mary L., aged thirty, unmarried, occupation seamstress. Patient anæmic and of slender build, parents living and healthy. Symptoms, goitre quite noticeable, heart rapid, exophthalmos not marked in this case. Prescribed iron and manganese pills and began treating the patient at once with galvanic current, treating her for twenty minutes every second day; this patient made rapid improvement and in two months time was so well that she discontinued treatment. I have seen her once during the past year, when she informed me that her trouble never returned, her health has been good since taking the treatment mentioned. This case I did not consider a serious one and the patient was treated early, also taking a much needed rest, which no doubt contributed largely to her prompt recovery. As she improved, menstruation, which had been absent for six months, returned.

CASE 3. Treated during the summer of 1894, Holland girl, aged eighteen, occupation domestic. This patient contrary to the usual rule, was not anæmic but had good color and full habit, family history good.

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The symptom which caused her to consult a physician were excessive sweating; her occupation exposed her to the heat of the kitchen and her clothing was saturated all the time with perspiration, which emitted a sour and offensive odor. The other symptoms observed on examination were goitre, and rapid pulse most of the time as high as 120, menstruation scanty and irregular. Patient was treated by galvanism.

Medicines given were permanganate of potash, and belladonna; treatment continued for four months; goitre disappeared and heart action reduced to 90; profuse sweating stopped and menstruation restored.

CASE 4. January, 1896, boy 10 years old, occupation pupil, parents healthy. This boy developed goitre and exophthalmos while under treatment by me for acute rheumatism. The boy had suffered from a severe and protracted attack of rheumatism two years previously, which had left him with a valvular affection of the heart, which was aggravated by this second attack, and within two weeks a goitre and exophthalmos became quite noticeable. This patient being confined to the bed, received no electrical treatment. The treatment being directed wholly to relieving the rheumatism, which was accomplished in about four weeks. The boy still has a valvular murmur and goitre.

CASE 5. Miss L., aged 25, occupation public singer and instructor in music; family history good; became my patient during the summer of 1894. She gave the following history: During the preceding year, while a pupil in the Boston Conservatory of Music, she found she was suffering from bleeding piles, from which at times the hemorrhage was profuse; this having gone on for several months she consulted Dr. O. A. Marcy, of Boston, who took her into his private hospital and operated upon her for the removal of hemorrhoids, which operation was successful.

While in the hospital she began to develop exophthalmos, and within two months this symptom had changed her appearance so much that on her return to Michigan her friends sometimes failed to recognize her on the street.

I saw her soon after and discovered that she also had

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goitre, a fact which had hitherto escaped her notice. Her condition gradually grew worse, rapid pulse, irregular menstruation, profuse sweating and chronic diarrhœa being her symptoms. By November she had become too weak to continue her singing and teaching, and by my advice tried complete rest in bed for several weeks, when, seeing no improvement, she was sent to a hospital where she could have daily electrical treatment and massage. Improvement was rapid, and in about two months patient went home and treatment was discontinued until January of this year, when finding her strength failing rapidly, she again came back for treatment. Galvanism and massage were used and again marked improvement was noticed. Patient had daily or twice daily treatment for two months, and has now gone home much improved. She has a twelve cell battery and will continue to apply galvanism through the summer, or as long as there is continued improvement.

I might say in passing that during the last interval of treatment accurate measurements were taken, and the neck decreased in size one and one-half inches, and the pulse from 140 to 90 and 100. Patient increased in strength and though not cured was greatly improved.

In reporting the above cases I have not thought best to mention all the remedies that were tried and discarded, and have only mentioned that which was of apparent benefit, viz., galvanism and massage. Three of the cases took dessicated thyroids faithfully, but in each of these the remedy did no good but made the patient worse.

CASE 6. Called in September, 1895, Miss Z. R., age 18, occupation student; family history good. Physical signs were goitre and exophthalmos; on physical examination the pulse was found to be small, 100 beats per minute, and greatly accelerated by the slightest exertion. Any considerable effort, as the climbing of one flight of stairs, would cause dyspnœa and general distress; the sounds of the heart were not altered except in the duration and force of the first sound. There was an absence of physical signs to prove the existence of any ordinary form of heart disease; it was the ideal con-

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dition met with sometimes as a result of overwork, producing cardiac exhaustion.

The symptoms described all developed within three weeks, and are of interest because I believe the contributory cause was the abuse of the bicycle. The patient belongs to a family of bicyclers, her father being a dealer in that much sought after vehicle. It had been her custom to take many long and tiresome runs to adjoining towns, also to climb steep hills without dismounting, and had repeatedly tired herself in this manner till forced to desist by the development of the symptoms described. In this patient the goitre, exophthalmos and heart symptoms developed simultaneously. Treatment: Rest in bed for several weeks, nutritious diet and tonics improved the patient rapidly. She did not continue treatment as long as she should have done, and at this time, though enjoying a fair degree of health, still has goitre and the eyes are not natural; she has not resumed the use of the wheel.

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DISCUSSION OF DR. SPENCER'S PAPER.

DR. GEO. DOCK: Mr. Chairman, I think we ought to be very glad that this paper was left over from yesterday. It certainly is a very clear presentation of the subject, and I agree entirely with the speaker in regard to the pathology; I think he has given a very good idea of it. In regard to the treatment of the disease, it is important to remember, in the words of an old teacher of mine, "Exophthalmic goiter is a disease that never recovers, but is never fatal." Of course, that is not entirely true, as I have made a number of autopsies myself. But the disease is one in which apparent cures are often observed. After a time the symptoms reappear, however, so that it is an extremely interesting disease in which to make therapeutic discoveries. In regard to the use of thyroid, of course, the curious fact is quite well demonstrated that the administration of thyroid very often produces symptoms of exophthalmic goitre, and thyroid is most useful in a disease with symptoms just the opposite from them in exophthalmic goiter, and so it would seem that thyroid should not be used in the latter disease. As a matter of fact I think, however, it is too early to give it up. We do not know whether the disease is due to the overproduction of thyroid or to the altered secretion. Now, if it is due to the altered secretion, it may be that the administration of normal thyroid will do good. A certain number of cases have been observed in which it did seem to do good. As I have said one must be very slow in drawing conclusions while so little is known. It is only a short time since Baumann published his remarkable discovery of thyroiodin, so I think it is too little known as yet to enable us to decide its therapeutic value. The more severe symptoms of poisoning from thyroids I think are clearly shown to be due to decomposition products. I have used a large quantity of thyroid, and I have never seen

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the more severe symptoms of poisoning, yet I used glands that were quite effective. So if one gets pure products, and I think the American product is as pure as any imported, I think none need fear the severe symptoms from the administration of it, and I think it is a little too early to give it up.

In regard to electricity, it is a striking fact that some authors claim that only one kind of current will do good, others claim that only some other kind will do good. Few who have large experience in the treatment of exophthalmic goitre think the benefit from the administration of electricity is so great as does Mr. Cardew.

A point in the treatment that should always be remembered is the importance of putting the patient at rest. That is often seen in patients in hospitals with other diseases. Patients have lived with comparative freedom from the symptoms for as many as 20 years, where they were kept almost entirely quiet and free from care. In any case, these patients should take more rest than they are in the habit of doing. And, of course, if they avoid cares of various kinds, or worries, the improvement will be more marked. Of course, different cases require at times different medicines, tonics, cardiac stimulants, but as the doctor has said, no drug will cure the disease.

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QUESTIONS CONCERNING THE ETIOLOGY AND PREVENTION OF PULMONARY CONSUMPTION.

E L SHURLY, M. D.,
Detroit.

Questions relating to the causes and prevention of pulmonary phthisis will, of course, be interesting to all workers in the field of medical science as long as so much remains to be learned and accomplished. The discovery and manipulation of the tubercle bacillus has certainly inaugurated a new era in the study and elucidation of the several maladies grouped as tuberculosis, and would contribute a further impetus in this direction if it were not for the prevailing delusion possessed by many that observations upon this microbe, and of its behavior, comprises the whole of the pathogenesis of each member of the group of maladies called phthisis pulmonalis. It is an unfortunate habit indeed that we have fallen into of settling all etiology upon microbic phenomena alone, thus practically excluding many other factors concerned in the origin and maintenance of disease.

Unless the profession becomes more conservative in this respect, I fear that the great achievements reached by the development of bacteriology and sanitary science will become denuded of much practical value; for there are many honest and erudite persons pushing the microbian tenets with a radicalism verging on the borders of sophistry or even ridicule. This is especially true regarding some of the measures proposed, and sometimes enforced, in respect to pulmonary phthisis tuberculosis, so-called. Take for instance the theory of the spreading of tuberculosis from the dead. Now, who has ever traced the origin of a case of this disease to exposure

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to a body dead of tuberculosis of the lungs, peritoneum or joints? What facts have we to support the idea that cases of this disease originate from such exposure? Going still further on these particular lines we meet with honest, educated men who believe that the disease may be communicated from the hands, hair, clothing, table utensils, etc., of individuals. If such an idea were carried out to practical execution what pictures society at large might exhibit, doctors and others going about without hair, either on head or face, and without clothing, save aseptic raiment; people having to carry about their own sterilized cups, saucers, glasses, knives and forks, and other personal appurtenances. Think of having to wash one's hands in a bichloride solution before shaking hands with a friend, or having to furnish your front hall with a basin full of such solution for sterilizing the lips of your daughter's fiance when he comes to make his evening visit; or worst of all, think upon the direful check to the growth of the church when the communicants, or even members of the congregation, shall be obliged to not only avoid proximity to every one who coughs, but to disinfect themselves and their Sunday finery before participating in the exercises. A sanitary vestibule in every church. It will certainly drive people from the church to the street and saloon. Yet there are a few in our profession who are actually crying aloud for such or like so-called sanitary reforms. It is obvious that the promulgation of such radical sanitation may create a revulsion which will throw us back to the dark ages of sanitary practice. It seems to me that this danger is not altogether chimerical in the light of present tendencies, but may be avoided by securing for members of boards of health general practitioners entirely, or in large proportion, instead of laymen. Besides the agency of the tubercle bacillus in the progress or dissemination of pulmonary phthisis (a subject so widely discussed as to need mention only here), I would allude to contagion, heredity, habits, habitat, occupation, social condition, climate and the acute pulmonary diseases.

The question of contagion already alluded to devolves largely upon the nature of the tubercle bacillus for its stand-

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ing according to modern thought. I am sorry that we have not the time to discuss this point in extenso, but suffice it to say that while there is apparently some evidence of the infrequent occurrence of this event, it is not common, and until proper statistical testimony is gathered it will be impossible to know just what proportion of cases originate in this way solely. According to my own experience I believe there are a very few.

Heredity, as you all know, is a prominent etiological factor, and no amount of theoretical dogmatism or speculative reasoning can do away with the time honored fact that tuberculosis is largely dependent upon hereditary predisposition for its development. Habits, occupation and social conditions we also know play important parts in the genesis of all acute and chronic pulmonary disorders, so that I need not weary you with platitudes on this branch of the subject. Habitat and climate are perhaps coequal with hereditary in exciting the advent of phthisis pulmonalis. The prevalence of this disease in localities stamped with changeable climate is so notorious as to be deemed a fact, and especially in connection with bad hygienic environment, yet perhaps we do not give the subject the reflection which it deserves or the conclusions arrived at would differ more materially from those which have come to be the fashion.

Squalor, filth, poor food, (especially nitrogenous) and all other circumstances which appear to us as absolute and dangerous of life deficiencies are borne by the many natives of warm, salubrious climates while enjoying comparative immunity from phthisis pulmonalis. Now if the bacillus tuberculosis alone is the source and activity of the disease, why does the microbe stop its damaging enterprise to such an extent in salubrious climates? And it has still the pabulum for growth and extension; it is anærobic. Again, why do so many suffering from chronic or subacute pulmonary disease recover under favorable climatic conditions alone? The aggregation of facts in this particular is too overwhelming to justify any other conclusion than that low, damp locations

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possessing changeableness of weather are the natural habitats of pulmonary phthisis. The next important etiological factors, and inexorably incidental to insalubrious climates, are the prevalence of acute and sub-acute pulmonary diseases. La grippe is one of the most fruitful sources, then influenza, acute bronchitis, broncho and croupous pneumonia and pleurisy. The many cases of pulmonary phthisis which arise from the outset of these diseases are astonishing, as I think every practitioner will admit, and especially is this true of influenza, broncho-pneumonia and pleurisy.

With regard to the latter disease I cannot agree with some observers that all cases of pleurisy, or nearly all, are of tubercular origin or nature. On the contrary, as I pointed out in a paper read before this body in 1888, I think the majority of cases of acute pleurisy are either of a rheumatic nature or the result of an injury, yet I do believe that even these may become cases of tuberculosis if not assiduously looked after; that is, if effusions are allowed to remain too long. Again, cases of injury or shock to the thorax, whether a rib is broken or not, when effusion takes place, may become thus transformed into a phthisis pulmonalis or a veritable tuberculosis. This may happen even without the transitory stage known as empyema having taken place to a marked extent. The absence of microbes in so many cases would lead to the view that in these several forms of pleurisies the bacterial participation is of secondary importance.

I have now three cases of delayed absorption of mixed effusion under treatment in which no tubercle bacilli can be found in the sputum, in one of which a drainage tube has been inserted, and no tubercle bacilli have been found in the discharge. All of these are, nevertheless, to be considered cases of phthisis pulmonalis. Also another case which I saw in consultation with Dr. Hickey, which ran through the ordinary course of an acute pleuritis with serous effusion with no tubercle bacilli in the sputum, and which has developed into phthisis pulmonalis. Even cases showing diseased ribs, the effects of injury, may become phthisical, often if proper

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surgical measures are not adopted in time, although not always. I therefore believe that climatic conditions, with the several acute pulmonary affections attendant, contribute more largely in the early production of phthisis pulmonalis than anything else.

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DISCUSSION OF DR. SHURLY'S PAPER.

DR. ERNEST L. SHURLY, (exhibiting patient): I present to you ladies and gentlemen an interesting case, as one of those which are denominated generally tuberculosis of the pleura; when I saw the man at first he was in rather a hopeless condition as the result of an injury, first of the costal cartilage. Subsequently inflammation of the rib pleura, the perichondrium of the costal cartilage, and empyema. The opposite lung became involved afterwards as the physical signs showed. I made a preliminary operation by opening the chest, taking out a small piece of rib, and putting in a drainage tube. The man did not seem to recover from that, and after waiting about three weeks, I made a subsequent operation by taking out quite a large portion of the costal cartilages with the adjacent ribs, clearing out the pleural cavity very thoroughly by washing and the scoop, notwithstanding that the other lung was involved. He made a rapid recovery to a certain point and is slowly recovering, so that he is now in a condition of pretty good health. He is not able to breathe as freely as formerly, his breathing capacity being compromised, but he is able to do light work and is practically a well man. I only show you the case to illustrate that such cases ought not to be abandoned; I do not think they are nowadays as much, but in my early professional life I noticed that the profession was quite liable to abandon these cases as hopeless ones of tuberculosis. This patient showed all the clinical features of tuberculosis, except the presence of tubercle bacilli.

The first operation was made about two years ago and you see from the site it is in close proximity to the pericardium; at the second operation we found that we had to take the whole of this portion of the pleural membrane away, leaving the pericardium bulging into the opening. We finally suc-

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ceeded in reflecting a piece of the pleura that was loosened across the opening and thus prevent a hernia, until the parts have healed up. Of course, his respiration as you see is quickened very much, but nevertheless he has breath power enough for any ordinary avocation. I think it would be quite interesting to some of the members to listen to the two sides of his chest now. There is a very marked emphysema on the other side. He had bronchial pneumonia on the right side, and we supposed it was going to develop into tuberculosis there. I think you will find that the left side of the lung has expanded pretty well. On the opposite side the lung shows vesicular emphysema, which is quite an interesting point and rather inexplicable, considering the morbid condition which prevailed at the time of the operation, and subsequently.

DR. WILSON, Port Huron: I understood from your paper that it was the disease of the costal cartilage that led you to operate in that particular place?

DR. SHURLY: Yes, although I had to go above it somewhat. I had another case lately of empyema in which the tubercle bacilli appeared later. On first opening the empyematous chest the first discharge contained no tubercle bacilli, but tubercle bacilli were found in the sputum just before operation. I only saw the man for about two weeks. He also recovered. I have been very much puzzled in several cases of this sort in which I meet with old effusions, partially lymph or mixed effusions, partial empyemas, and some with inflammation of the rib. I just remember one case in which there were large masses of exudate, not organized but in layers, to the extent that I cleared out perhaps what might amount to six ounces by weight with my hand before washing out the pleural cavity In this case there were no tubercle bacilli found. In still another similar one we found tubercle bacilli both in the discharge and in the sputum. Therefore I confess, from a pathological standpoint at least, that these cases are quite puzzling. However I believe that the majority of cases of pleuritis which do not readily recover may become phthisis. I still believe that, notwithstanding the very powerful evidence

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which Dr. Bowditch of Boston and others have adduced to the contrary.

A Member: I would like to inquire in these cases of empyema how long you allowed the tube to remain in usually; and I would like to ask also whether you washed the cavity out every day while the tube is being worn.

DR. SHURLY: It depends on the case. In cases where only five or six ounces of pus are found I do not wash the cavity out perhaps for two or three days, especially where there is little exudate. I mean the disorganized exudate, which microscopically looks very much like inspissated mucous and pus or lymph. Where there is much of that I am now in the habit of scooping it out and washing the cavity with sterilized water at once. However I prefer not to wash the cavity out at all for several days. After beginning the washing through a drainage tube it should be continued once a day. I usually keep the tube in as long as there is any sign of purulent discharge, even though it be six months.

A Member: Don't you think there would be less tendency to tuberculosis setting in if the tube were kept in a long time?

DR. SHURLY: Yes, perhaps so. I am in the habit of putting such patients into the pneumatic cabinet as soon as the character of the discharge changes in quantity and quality, and they regain strength; and begin by taking off one-half inch of air and continue until five or six or seven inches are taken off at each sitting, thus inflating the lung. Of course if I find adhesions, thickened pleura, etc., and the patient is in good condition, I try to break up those adhesions if I can without producing injury. I generally use for washing out the cavity peroxide of hydrogen. I have used a weak solution of permanganate of potassium, 1 to 5000. Mercuric bichloride put in the chest cavity induces acute pleuritis and produces mischief.

DR. HERBERT M. KING, Grand Rapids: There are one or two points in reference to this very interesting paper of Dr. Shurly's which I wish to emphasize. The question of tubercle bacilli being the one cause *sufficient* for development of tuberculosis I think has been pretty thoroughly and exhaustively

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discussed, and I believe the more conservative thinkers have come to agree that the bacillus alone is not a sufficient etiological factor in the disease. The disease itself is an extremely prevalent one. We are all exposed to infection by the bacillus, and however prevalent it is, it would be more so if the bacillus alone were the sole and only cause of the disease. It seems to me, as I remarked in a paper which was published in the New York Medical Record in 1894, I think, that there are at least two essential etiological factors in tuberculosis, viz., a pretuberculosis condition, whether that be from inherited taint or acquired cachexia, and what is an equally essential factor, the tubercle bacillus. Climatic influences, the hygienic conditions, sanitation and so on, of course, go to make up this predisposition to tuberculosis. The prevalency of tuberculosis is even greater than the majority who have not given the subject special attention might imagine. In the autopsies conducted in the autopsy chamber of Bellevue hospital it was found in the two years to which I have reference, that in all cadavers upon which postmortems were made from all diseases, *one* out of every *three* showed positive signs of having at one time or another had tuberculosis. It might have been a tuberculous joint or a tuberculous consolidation of the lung. And, of course, not one out of three died of the disease, nor had active tuberculosis at the time of death. I believe it is said about *one* out of *seven* die of tuberculosis in some form, but one out of three had the disease at one time or another in the course of their lives, showing that there is a tendency toward convalescence, which is probably due to improvement in hygienic surroundings, sanitation, or in change of climate, one cause or another. This matter of taking such precautions in regard to the conveyance of dead bodies of patients dying with tuberculosis, seems to me perfectly ridiculous. From two hundred and fifty thousand to three hundred thousand of tuberculous living patients migrate without any restriction from one part of the country to another, and expectorate wherever they please, traveling in coaches indiscriminately, in the sleepers, going from Colorado to New York, from Florida to Michigan,

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every year, and with no restrictions; but when they die the boards of health of certain sections of the country require them to be encased in metallic coffins, incurring great expense to the family and annoyance to everyone who has anything to do with them. I think it absurd and can see no advantage to be gained thereby.

There is one more point upon which I wish to speak. It has really become in this age of fads a very serious question what is to be done with the consumptive. Of course, the large majority of consumptives are in a walk of life where they are obliged to support themselves. They rely upon their own work for their livelihood; servants, shop girls, especially shop girls, and men working in factories. They develop incipient phthisis and their employers when they suspect it send them to a physician, and when a diagnosis of tuberculosis is made these poor individuals even in the early stages of the disease are thrust out of employment; and in a great many cases sooner or later they fall upon the charity of the locality in which they live for support. I confess I am at a loss to know what should be done, or to make any suggestion as to what may be done in this matter except to educate the people to understand that the mere presence of a tuberculous patient, if he or she be properly instructed as to the care of themselves, is not dangerous. I don't think that any of us would care to have a tuberculous cook or a consumptive taking care of our food or our children, but there are many avocations in which I think they might continue to earn their living harmlessly.

Dr. Shurly spoke of pleurisy predisposing or preceding tuberculosis. I think every one agrees that among other etiological factors pleurisy is an important one. We have all of us seen cases of hepatization of the lung following pleurisy with effusion, empyema or thickening of the membrane of the pleura; hepatization, with cough, expectoration, rise of temperature and all those things, but without tubercle bacillus in the sputum. I have a case now under my observation in which complete hepatization of the two lower lobes of the right lung exists, the percussion note is as flat as it would be

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on the thigh, and an entire absence of respiratory sound exists. There are no bacilli in the sputum. It is my opinion that those cases tend to recovery unless tuberculosis supervenes. This condition in itself would predispose to tuberculosis, and when tubercle bacilli do appear I think the prognosis is even more grave than it would be in a primary case of tuberculosis.

DR. HENRY B. BAKER: I did not come here with the intention of speaking on this subject at all. It is of great interest to me, and I have taken great pleasure in listening to Dr. Shurly's paper. It seems to me there are some points that have been partly overlooked that it might be well for us to consider. Taking first the point made by the speaker who just preceded me, that something more than the tubercle bacillus is required for the causation of tuberculosis. The same principle is true of small-pox. If we take vaccine virus and rub it on the arm we do not necessarily vaccinate a person. Something more is required than the specific cause for the causation of a specific disease. But that is as true of small-pox and scarlet fever as it is of tuberculosis. It is true, as Dr. Shurly says, that climatic conditions almost absolutely control consumption, and I think we as physicians ought to check up our observations with those of statisticians who deal with statistics of large numbers of cases, and see whether in the hundreds and thousands of cases they do have relation to these climatic conditions. Now that has been done with tuberculosis, and it is unmistakably true that the increase and decrease of consumption follow absolutely the climatic conditions, the climatic changes in our own State, and it is true in other states They do so everywhere so far as I have been able to study. Now that very fact stamps tuberculosis as a communicable disease. That may seem a little strange to you, but it is true of small-pox, scarlet fever, diphtheria and every disease that goes in through the throat and air passages, that they are absolutely controlled by the temperature and other meteorological conditions, more especially the throat irritants. The curve representing the rise and fall of ozone in this State is almost precisely the curve

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for the rise and fall of influenza. Ozone in this State, and probably everywhere, increases with the cold weather and decreases with the hot weather. The atmospheric temperature, the absolute humidity, the wind and the ozone curves absolutely control the rise and fall of these diseases, and they do it probably through their influences in the throat and air passages; but that they do it is absolutely known, thanks to the members of this society and others who have made it possible to establish sickness statistics and compare them with meteorological conditions. Now the fact is that the rise and fall of tuberculosis corresponds with those other *communicable* diseases that go in through the throat and air passages, and these other dangerous diseases require something more than a specific cause. Take for instance the statistics in Providence, Rhode Island, where they have studied the children in the families where scarlet fever is, who are exposed to scarlet fever, and have learned the proportion that will have it. Only about half of them contract scarlet fever. The same principle is true in small-pox, something more being required than the specific cause. One of the things required is, as Dr. Shurly has mentioned, a predisposing and suitable constitution, but another is that there shall be some way for the germ to get into the body, and that way is supplied by the throat irritants—cold, raw, windy, irritating atmosphere.

I would like to say a word or two in reference to the law in this State relative to the transportation of dead bodies. Dr. Shurly asked us how many cases of consumption had been traced to a dead body. How many cases of consumption were traced at all until recently? I think there were not many. We were not in a position to trace it. Not long ago the same thing was true of diphtheria. How many cases of diphtheria were traced to dead bodies fifteen or twenty years ago? Not any. It is easy to trace them now. Where is the specific cause of diphtheria? It is in the throat; nowhere else. How does the dead body convey it? We know that the corpse spreads diphtheria, and sometimes whole families have been wiped out by bringing into the houses diphtheria corpses. We know it now. We know diphtheria is spread

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by the sputum from the throat. Where is the specific cause in tuberculosis? It is in the same place, practically, as the specific cause of diphtheria. That is to say, it is in the sputum. It may be in the joints and all that sort of thing, but we do not care for that; but the corpse of a consumptive is as dangerous after death as a diphtheria corpse, only the period of incubation is so long that in following it up it will take very careful work in that special line of investigation to trace its spread.

The argument has been made that because we let a coughing consumptive go from one end of the country to the other, therefore, we should let the dead body go. Those who are laboring for the repression of disease have to begin somewhere. They may as well begin on the dead body as on the living, perhaps. It is quite frequently the case that we pay attention first to those things that are not of most consequence, and gradually work up to the most important. In this State we have been working for the repression and prevention of a number of diseases, smallpox for instance, that are of no consequence compared with tuberculosis.

The large number of persons or corpses who, at Bellevue Hospital, were found tuberculous has been mentioned. There was a time when every person went through smallpox in the same way, and *all* those who were living showed the marks of it. That disease has been wiped out. There is not a case in this State to-day so far as known. It seems to me something similar ought to be done with reference to tuberculosis. The smallpox patient, after it is dead, is not moving; it is not coughing, not throwing off any germs, and yet smallpox is sometimes communicated from the dead body. Currents of air may take off the specific cause and take it to a susceptible person. But I see I am taking up more time than I intended.

DR. SHURLY: Mr. Chairman, if you will allow me to say a word in answer to Dr. Baker respecting one statement which I have objected to all along, and that is the classification of tuberculosis with small-pox and diphtheria. The etiological condition of the subject is to me entirely different, just

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as different as Asiatic cholera and cholera morbus. There are no proofs, that I know of, of tuberculosis having been communicated from the surface of a dead body. There are no facts in the history of tuberculosis even to show that it can be communicated from the skin of a dead body. And I must say I cannot agree to the analogy between them that the doctor draws; but what the doctor says about the climatic changes, ozone, etc., is certainly true and ought to be endorsed by everyone. I think the climatic relations to this disease, as the doctor suggests, ought to be studied with great assiduity, and, as I said in the paper, if all the large boards of health were composed of physicians, entirely non-political, practitioners of fifteen or twenty years standing, old fogies if you please like a lot of us here, then perhaps the practical side of hygiene would be advanced and the men who are working so hard and have done so much on statistical lines, as for instance our secretary of the state board, Dr. Baker, who I think stands unparalleled as a statistician in this country, could accomplish much good. If he could have a board of health back of him composed entirely of practicing physicians I think it would be of great benefit, and there would be less danger of sanitary science falling into disrepute as it has been doing in many of the states. The profession in New York I understand are beginning to object vigorously to a great many of the regulations and their enforcement, and so it will be everywhere. Officers must remember that the American people give up their individual or personal liberty with bad grace as a rule unless they know it is for the general good, and when they *know* that they cheerfully sacrifice it. I think that in some of the eastern cities the boards of health do not pay enough attention to the practical points of sanitation.

DR. DOUGLAS, Detroit: If I understood Dr. Baker aright he ascribed the regular arrival of these diseases to the increased amount of ozone at the different seasons. Is that the jist of your remark on that subject, doctor?

DR. BAKER: I dislike to take up the time of the section that should be devoted to a paper.

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DR. DOUGLAS: I simply asked the question whether you ascribed it to that or not.

DR. BAKER: No; not altogether.

DR. DOUGLAS: Well, that is all. I wanted the point made clear for fear the others might mistake it. Of course we have an increased amount of ozone at different seasons of the year, and we have a decreased and increased amount of infectious diseases in different seasons of the year. I am glad that I misunderstood Dr. Baker's statement. Whether the ozone has much to do with that or not, I am not prepared to say. I think that the general understanding of physicians who have to contend with these diseases and watch their inception and their treatment is that the increase in all inflammatory throat affections, including diphtheria, is in direct proportion to the cold, wet changes of the season. While in some epidemics where the poison is very prevalent and very intense we will have infectious diseases running right through the seasons of warm weather, still we all look naturally to the increase of cold weather, and changeableness of the atmosphere, for an increase of throat affections; and the question whether we have more or less ozone at that time strikes me as being very pertinent, but I have always looked for plenty of throat troubles when we have the rough weather in the fall season.

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SIMPLE NEURITIS.

WM. J. HERDMAN, M. D.,
Ann Arbor.

The subject of neuritis has seemed to me deserving of special consideration before the members of this section, composed as it is for the most part of general practitioners, since in recent years, through the influence of specialism, many disorders mainly characterized by pain and forced limitation in motion have been found to be due to inflammation of nerves that were formerly and still are classified by many physicians under the general and somewhat indefinite titles of rheumatism, neuralgia, joint affection, etc.

Nerve tissue is now known to be the seat of a variety of forms of independent and primary inflammation. In some cases it is the sheath of the nerve only that becomes inflamed. In other cases the interstitial connective tissue, or neurilemma, as well as the perineurium is involved, while in still other instances the neuron or nerve tissue proper is chiefly affected by the inflammatory process.

The choice of the special tissue in the nerve which is to serve as a starting point for the inflammation is made in many, if not all, instances by the nature of the irritant which is credited with causing the inflammation. Some forms of irritant are always causing parenchymatous, while others are as invariably followed by interstitial forms of inflammation.

The graver forms of inflammation are those that attack primarily the substance of the axis cylinders, for if this is extensively disintegrated by the inflammatory processes paralysis of the nerves involved quickly supervenes, and unless repair is prompt permanent disability of sensation, or motion,

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or both, is the result according to the nature of the function of the nerves involved. Considerable inflammation on the contrary may take place in the connective tissue elements which compose the enclosing sheath of the entire nerve bundle or of its separate funiculi without doing serious damage to the axis cylinders, though the immediate and sequential effects of such inflammation may greatly impair the function of the nerve. It may be safely said that a nerve which has been the victim of even an interstitial inflammation, provided it has been of some severity, seldom returns to action entirely normal. A weakness and susceptibility appears to remain, which is in all probability directly due to structural change occasioned by the inflammation. Cicatricial tissue, which so commonly results from inflammation of connective tissue, may of itself cause much disturbance of function by obstructing lymph channels and impeding the free circulation of blood even though it may not directly obstruct the transmission of nerve impulses.

It is quite important therefore that we be on the alert to detect inflammations in nerves at an early stage in their development in order that appropriate means may be used to bring about resolution promptly and so ward off permanent disability.

FORMS OF NEURITIS.

To one somewhat familiar with the various forms in which neuritis occurs it is clearly evident that, at times, the conditions are such as to give to the disease a limited range or local character where only one, or at most only a few nerve trunks are involved, and these have a unilateral or a symmetrical distribution in the body. While in strong contrast to this form, other cases are observed where the disease attacks simultaneously nerves of corresponding distribution and function on opposite sides of the body. The former class has now, quite generally, received the name of *simple neuritis*, while those of the latter type are spoken of as cases of *multiple neuritis*. Although these appellations are to a certain extent purely arbitrary, yet it appears upon close observation that we have a broader foundation than mere extent of distri-

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bution on which to base the distinction between the two forms. The manner of distribution of the inflammation seems to bear some direct relationship to the pathological character of that inflammation, and likewise to the cause which produces it.

Multiple neuritis, in the sense that it is symmetrical in its multiple distribution, is, as a rule, an inflammation of the parenchyma of the nerve, while in the majority of instances those forms of neuritis which occur in single nerve trunks are of the interstitial or connective tissue variety. Moreover, the cause of multiple neuritis is generally conceded to be due to a toxic or toxæmic state of the blood to which certain nerves located in homologous parts of the body are peculiarly susceptible, whereas the causes of simple neuritis are more various and less determined by any one peculiarity of nerve structure or position; and while the latter form of inflammation may likewise be dependant, in many instances, upon the state of the blood, the direct relationship between this blood state and the interstitial inflammation in the nerves is not so apparent. As the forms of simple neuritis, those involving primarily the interstitial connective tissue and limited in range to one or to a few nerve trunks, are by far the most frequent in this section of country, it is to these rather than to the forms of multiple neuritis that I wish to limit this discussion.

CAUSES OF SIMPLE NEURITIS.

The causes that may give rise to simple neuritis are various. Injury of some sort is perhaps the most frequent cause. Bruises, cuts, tears, punctures, over-stretching may directly injure nerves and result in the immediate onset of degeneration in the nerves injured, or the degeneration may be preceded by a stage of inflammation, excited either by the introduction of foreign substance, which the wound permits to enter, or by some products of the necrotic changes which result from the injury. There is no uniformity in the pathological sequences that occur from inflammations due to these causes. Usually the inflammation is of the interstitial variety provided the local conditions are not such as to generate much septic material at the seat of injury, in which case no

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part of the nerve escapes. In the latter case the inflammation is liable to extend in a migratory manner up and down the nerve, setting up here and there secondary foci of inflammation which may prolong indefinitely the disease and result in extensive impairment of nerve function. In some instances inflammation of nerves of this migratory character following injury may by extension invade the structure of the spinal cord or brain.

More strictly limited and localized inflammation in nerves result from compression such as that due to lymphatic gland enlargements, tumors, aneurisms, exostoses, etc. A frequent cause of compression neuritis is improper clothing of the waist and feet and other parts of the body. Ill-fitting shoes causing either directly or indirectly undue pressure on some one of the numerous nerves of the foot or ankles sets up a neuritis which in many instances goes unrecognized and is attributed to rheumatism or neuralgia, and for that reason fails to receive appropriate treatment. Occupation neuritis is likewise not uncommon where the use of some tool or a prolonged confined posture of the body, or some part of it, favors compression of certain nerves sufficient to excite inflammation in them. The relation of cause and effect here is usually quite evident, and the disease itself by rendering such occupation impossible puts an end, temporarily at least, to the continuance of the cause.

But there are certain auto-toxic or toxæmic states which, while they are well understood to be productive of various disorders, are not generally known to have that intimate and causative relationship which they certainly do have to *simple* and, in many instances, also to *multiple* neuritis. Chief among these auto-toxic causes of neuritis, in this climate especially, is rheumatism. That peculiar abnormal product of retrograde metamorphosis of tissue which serves as the irritating principle in the production of rheumatism would appear to have at one time or under certain conditions, as yet not clearly understood, a selective tendency for one variety of tissue, and at another time another. Now it is the serous or synovial membranes that are chiefly affected by it; again it

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is the muscles, while not infrequently its irritating effects are expended almost wholly upon the nerves. It may be found, ultimately, by closer analysis, that it is not the same form of irritant that causes the mischief in tissues which differ so largely in anatomical structure and physiological function. I am strongly inclined to the opinion that eventually a difference will be shown to exist in the blood state when what we term rheumatism is attended or followed by neuritis from that which obtains when acute inflammation of the joint structures is the result. But with our present knowledge it is important for us to recognize that a simple neuritis is one of the very frequent accompaniments of what we term the rheumatic diathesis.

Other toxic agents either generated in the body by some fault of assimilation or defect in retrograde metamorphosis of tissue, or a metallic substance introduced from without such as lead, arsenic, mercury, etc., may be the direct cause of a simple neuritis; but most of these toxic and toxæmic causes other than the rheumatic and gouty diathesis are productive of the *multiple* or *symmetrical* form of neuritis, which I have purposely left for separate consideration.

SYMPTOMS.

The symptoms of simple neuritis vary much according to the nerve or nerves affected as well as to the severity of the onset and the pathological nature of the inflammation.

The constitutional disturbance is slight unless the inflammation is of unusual severity and several nerve trunks are simultaneously affected.

Pain is usually the most important symptom at the onset. It is felt both at the seat of inflammation and in the terminal branches of the nerve. In the former place, if the nerve is of large size and deep seated, the pain is usually of a boring, dull, aching character, the sensation seeming to emanate from all the tissues in the vicinity, especially the bones. The pain felt in the terminal distribution of the nerve is of a smarting and burning character, as if the surface was raw or blistered; or a prickling, stinging, hyperæsthetic state of the skin maps out the surface distribution of the nerve. The course of the

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nerve is shown by tenderness and soreness on pressure at the points where the inflammation is located, and if the nerve is near the surface some redness and swelling may be observed about it ' Any position of the part that causes pressure upon or stretching of the nerve, or that increases the blood pressure in the vessels in its vicinity, like coughing or muscular movement, aggravates the pain. What are termed sympathetic pains radiate, at times, into distant parts, as into the corresponding nerves of the opposite limb, without actual extension of the inflammation to these parts. The pain is usually more severe at night, which may be due to constrained posture or changes in the peripheral circulation. In nerves whose function is chiefly motor, such as the facial, the pain and sensitiveness is not so great even with the same degree of inflammation.

The muscles supplied by the nerves involved are weak and tender upon pressure; especially are they sensitive at the points where the nerve branches join the muscle.

After a time the *swelling* and inflammatory exudates in the the sheath of the nerve appear to interrupt to a greater or less degree conduction, and perverted sensations and anæsthesia occurs over limited areas. *Disturbances in secretion* and nutrition supervene as the process is prolonged or assumes the chronic form; *atrophy* of the *skin*, giving it a smooth glossy appearance, or an excess in the growth of the epithelium, are common changes. An increase or complete absence of perspiration may occur. Oedema of the subcutaneous tissue and effusion into joints is not uncommon. Herpes is occasionally seen, but it is a rare accompaniment of simple or isolated neuritis. The muscles supplied by the nerves undergo atrophy and the electrical reactions are changed in quantity, and if complete motor conduction has occurred qualitative reactions soon set in and paralysis more or less permanent is the result. A preeminence of trophic symptoms is somewhat indicative of the greater degree of severity which the inflammation has attained and the amount of destruction which the nerve fibres have suffered. Their

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presence is therefore an important feature in determining the prognosis.

The symptoms here described as characteristic of an acute attack of isolated neuritis do not differ materially except in severity and rapidity of onset from those which occur in the chronic form. An acute attack is quite liable to pass into the chronic form by reason of the fact that the structure of the nerve once damaged renders it much more susceptible to recurring attacks, and if the cause is a constitutional one, as rheumatism, such a vulnerable point at which to exhibit its hostile nature is all that is required and a succession of less acute inflammations is likely to attack the nerves that have once suffered from this cause.

COURSE AND DURATION.

Cases of simple neuritis are for this reason liable to be prolonged indefinitely. A nerve to act normally needs to be free from impediments, and it is seldom, where once it has been the seat of inflammatory changes and its surrounding sheath or interstitial connective tissue has been loaded with inflammatory exudates more or less organized, that it is not impaired to a greater or less degree both in structure and function. Even slight attacks of neuritis therefore are liable to leave the part they supply a prey to neuralgic and rheumatoid pains, trophic disorders and weakened muscular action.

Uncomplicated cases of neuritis resulting from traumatism are in some instances followed by a succession of migratory inflammations in the nerve or its associates, and so the disease is indefinitely prolonged and assumes a chronic character, but it is chiefly in those cases where some impure blood state is present such as accompany a gouty or rheumatic diathesis or malarial condition where the first attack of simple neuritis is most liable to be followed by others and the disease become chronic.

DIAGNOSIS.

The first essential to a correct diagnosis of neuritis is an accurate knowledge of the anatomical relations and distribution of nerve trunks.

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When the sensory symptoms are analyzed, they will be found to arise from some definite nerve area, or if reflex or sympathetic to have intimate relations in an anatomical and physiological way with the inflamed nerve. In tracing the nerve upward gentle pressure over it will usually disclose uniform tenderness not present in the same degree elsewhere, or, what is more frequent, isolated points of tenderness will be found, especially at places where the nerve in its course emerges from bony canals or passes around bony prominences or through bands of fascia or beneath dense aponeurotic sheaths. Some redness and œdema may be noticed at these points if they are sufficiently superficial. Burning, tingling, or hyperæsthesia marks out the cutaneous distribution of the nerve in the early stages; later this gives place to subjective sensations of numbness and to actual anæsthesia in patches. It is in the interpretation of these sensory symptoms that the practitioner is more liable to make mistakes if he has not had his attention especially called to the frequency of neuritis as a distinct disease. Much valuable time is lost and treatment misdirected, or at least it fails in precision to meet the indications, if these pains are attributed to "rheumatism" or "neuralgia," as is too frequently the case. In the early stages of acute neuritis it may in some instances have some resemblance to an attack of acute articular rheumatism. Though in the latter there is more uniform swelling, redness and tenderness about the joints involved, the temperature is more elevated, and motion of the joint more painful. But after a few days there should be no difficulty in distinguishing between these disorders. It is true that neuritis may at times be secondary to acute inflammatory rheumatism, the nerves becoming involved by extension of the inflammation, but there need be no doubt in such cases as to which was the primary disease. The conditions that give rise to the more chronic forms of rheumatism, are so favorable to the development of simple neuritis that if this cause can be clearly made out at an early stage in the disease and the treatment directed so as to counteract the pathological tendency, the threatened neuritis will not only be warded off but the nerves will be

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saved from that damage to their structure that favors subsequent attacks.

A rheumatic diathesis, which has not yet declared itself by the signs that we are accustomed to look for, such as muscular stiffness and soreness, aching and swollen knee, ankle, wrist or finger joints, and urine loaded with uric acid, can still be detected with a reasonable degree of certainty by examining carefully for soreness at the junctions of the costal cartilages with the ribs. Tenderness in these less nimble joints, especially those of the third, fourth, fifth and sixth ribs on the left side, as well as in the tendinous attachments to the coracoid processes of both scapulæ, I have for many years found to be quite reliable as a diagnostic sign of rheumatic diatheses, and both in my own case and with many patients have learned to accept it as a warning that anti-rheumatic treatment was indicated. I believe that by paying heed to this early symptom of imperfect nutrition I have warded off much suffering.

Careless observation might find in the symptoms of a beginning periostitis much resemblance to simple neuritis. But the pain and tenderness of the former is more uniformly distributed and not so confined to the track of a nerve.

The pains of neuralgia are oftentimes due to a beginning neuritis or to the conditions of impaired nutrition remaining in a nerve as the result of neuritis. Anstie has said that "neuralgia is the cry of a nerve for healthy blood," so that neuralgic pains often arise under conditions similar to those which attend simple neuritis. But the pain arising from inflammatory processes in a nerve, and the pains characteristic of neuralgia, differ sufficiently to serve, when carefully analyzed, as an indication of the amount of structural change the nerve has already undergone. Neuralgia, properly speaking, is a functional derangement of a nerve Its pains are sudden, darting, stabbing in character and intermittent. Some tenderness at points along the nerve is present at times, but the sore spots of neuralgia are more constant and limited. When the nerve is tender it is usually where it passes through aponeurotic openings or emerges from bony

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canals. But years of observation has convinced me that many a simple neuritis has been called neuralgia and has been erroneously or inadequately treated on a misconception of its nature.

Neuritis of a motor nerve manifests itself chiefly in weakness and impairment of movement of the muscles dependent upon it if there is much obstruction of motor impulses to the muscle, and for a long time the electrical reaction of the muscle will begin to show greater irritability for a time to both forms of current and later the reaction of degeneration will be exhibited. Interstitial neuritis does not as a rule cause a loss of tendon reflexes, but usually heightens them for a time. If there is much interruption of conductivity in the nerve forces, however, these reflexes may be enfeebled or abolished. Trophic changes in muscles set it both from forced disease and from damage to the nerve. The degree of atrophy will be dependent upon the injury the nerve receives.

Perverted nutrition is also at times shown by hypertrophy or atrophy of the skin or its appendages, as the hairs, nails, etc., and the dependence of these changes upon the neuritis is shown by the changes being confined to a definite area of the surface of the body corresponding to the distribution of the peripheral nerve or nerves inflamed.

TREATMENT.

In the treatment of neuritis two main objects should not be lost sight of: *First*, the progress of the inflammation should be checked as quickly as possible; and *Second*, the nerves involved should be restored as far as may be to their normal structure and action.

To secure the first of these results the removal of the cause of the inflammation is the first step. I need not dwell on the details of treatment needed where the cause has been an injury or sepsis resulting from injury. Appropriate surgical care will here tend to limit the progress of the inflammation. Voluntary impulses should be restrained by mechanical supports, and in severe cases rest in bed is advisable so as to remove from the part even that demand on nerve energy which the maintenance of the sitting or standing position

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requires. Hot fomentations, antiseptic cheesecloth poultices and cotton wadding wrappings dissipate the local congestion and relieve the pains. Anodyne liniments, as soap liniment with tincture of aconite, chloroform and menthol, or ointments of sweet oil and lanolin, with a grain each of aconitia and veratria alkaloids to each dram of the unguent, afford great relief to the hyperæsthetic areas. Deeper seated pain requires hypodermic injections of morphia or cocaine. The latter is to be preferred, since it not only gives relief for a longer time, but its beneficial effect in directly limiting the extension of the inflammation is well recognized. Phenacatin acetanilid and antipyrin are somewhat sedative, and one or the other may be used for the relief of pain, especially where much general elevation of temperature attends the inflammation.

In the more chronic cases the progress of the inflammation may be checked by successive blistering or counter irritation over the points of greatest tenderness in the nerve. This is in most instances soon followed by a disappearance of such soreness, and an improvement in the action of the nerve. Small doses of mercury, as one grain of blue mass or calomel once or twice a day for several days in succession seems to directly limit or check the inflammation in many cases. If a constitutional diathesis, as malarial, rheumatic or gouty, is an underlying condition it of course must receive appropriate treatment. Care should be taken in all cases to eliminate effete products from the blood so that gentle catharsis by means of salines and general diaphoresis as well as diuretic treatment is in most instances advisable.

But the important service the physician can render in these cases of neuritis is by no means at an end when he has succeeded in arresting the progress of the disease. Quite as important is the second object mentioned at the outset, the restoration of the structure and function of the nerve. The usual result of even a mild case of simple neuritis is to leave the action of the nerve more feeble than before the attack. This is usually due to incomplete removal of the debris resulting from the inflammation. In my judgment there is no

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necessity for this weakness remaining provided both physician and patient realize the necessity of restoring promptly and fully the action of the nerve and adopt appropriate means for bringing this about.

If the original cause of the neuritis is a constitutional one, subsequent or recurring attacks are more liable thereafter to result from it, and it must be persistently combatted. In the vast majority of instances the local obstruction in nerves resulting from simple neuritis can be wholly cleared up if the parts are subjected to daily massage, passive movements, inunctions of mercury, as the oleate, and the negative electrode of a direct or galvanic current of about ten ma. is employed daily over the seat of disease in order that its electrolytic and cataphoric action may be brought to bear on the new formed tissue and disintegrate it. The removal of the debris is aided by judicious voluntary gymnastics of the part and the internal use of potassium and sodium iodide or the syrup of hydriodic acid, or in cases where iron is indicated, as in the anæmic, the iodide of iron. Such measures should always follow for some weeks an attack of simple neuritis, and not only recurrences will be avoided but permanent disability and deformity which is now far too common will be prevented.

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DISCUSSION OF DR. HERDMAN'S PAPER.

DR. HITCHCOCK, Detroit: The paper is a very interesting one on an important subject. I hope I may be pardoned if I cite briefly a case from that class of cases which Dr. Herdman has purposely left out of his paper, viz: the class of cases coming under the head of multiple neuritis. Dr. Emerson and I had a very interesting case of it in our service at Harper Hospital two years ago, illustrating multiple neuritis due to the absorption of poison. This neuritis followed soon after a large ingestion of paris green taken with suicidal intent by a young woman 19 or 20 years of age. She developed quite a typical multiple neuritis and became so speedily reduced that she was unable to leave her bed for several months. Most of her joints were painful and after a lengthy treatment she finally recovered, so that when she left our care she was able to stand upon her feet. The most violent attacks of pain occurred during the progress of her case, several violent attacks of abdominal pains. So severe were these attacks that the possibility of appendicitis was suggested at one time and a surgeon examined her but found no evidence of anything of that kind. These attacks sometimes lasted for two or three days during which she suffered most excruciating pain, but they finally subsided. When she left our care, although there were still contractures of both legs so that the legs could not be entirely extended at the knees, she was able to stand on both feet by supporting herself against the bed. She afterwards wrote us she was able to walk with a crutch and finally without support.

Speaking of the cases of simple neuritis, I suppose I may speak feelingly on that subject, for I think at the present time I can illustrate personally those cases. For more than a month I have had a painful right elbow, painful right over the external condyle of the humerus. Riding in my buggy and

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touching the side at any time I am forcibly reminded of it. During the intervals, the pain is not very severe, but just enough to be annoying. That lasted for some little time, and then I was taken with a very painful condition of the throat, and I can ascribe it to nothing else than a rheumatic condition. A year ago last fall or early winter I suffered a previous attack, not then I believe having any painful joints, but the neuritis of the throat manifested itself and I put myself under the care of Dr. Shurly, going to him almost every day, and for the past week or ten days I have again been under his care. The symptoms correspond beautifully with those described by Dr. Herdman. I sometimes get up in the morning with a tolerably comfortable throat, but as the day advances it becomes more and more painful and by night is the source of constant discomfort. Day before yesterday I arose quite free from pain, but it steadily increased until it was very painful. Yesterday it was very painful during the whole day. There is not much tonsillar involvement; there is some redness of the pharynx above and engorgement of the tissues of the neck. I think there can be no doubt of the diagnosis of this condition, and I certainly hope to get rid of it very soon.

DR. TURNER, Webberville: I was very much interested in Dr. Herdman's paper because it called to my mind a case I had last winter. The case was a man sixty-five years old; he had always enjoyed good health but was taken with pneumonia. He had a relapse of that and it assumed a kind of typhoid pneumonia. Now, when he commenced to recover from the relapse he commenced to complain of pain in the little finger of the left hand and the pain seemed to shoot up to his elbow. I examined the axillary region on that side and also the joints. I could not find any gland or any enlargement of any glands producing pressure on the nerve. So I was at a loss to find out what it was. I afterwards found out that sometimes after cases of pneumonia there are poisons left in the blood that would produce this attack of acute neuritis. He is getting some better than he was, but

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the little finger and the ring finger of that hand troubles him a good deal yet.

DR. WILSON, Port Huron: I had a case of acute double sciatica which was very painful, in which half grain injections of morphine with atropine did not control the pain. Six grains of acetanilin every four hours did, and the pain did not return.

DR. HUESTON, Ypsilanti: Mr. President and gentlemen of the convention: While I have been practicing some thirty-four years I have had many, very many valuable counsels from the medical profession and have lived up to all the ethics. I believe to-day that I have come amongst you honorably and fairly to spend the rest of my days. I have one or two questions I would like to ask in regard to the last paper. Being well acquainted with Dr. Herdman I think he will bear with me and perhaps help me out. Giving the diagnosis and treatment of neurosis he gives cases of injuries, and morbid poisons in the system. Now, as to what influence the mind may have upon matter in changing and producing morbid poison in the system, I wish to state two cases. I think Dr. Herdman saw one of the cases this last summer where a gentleman had had a great deal of trouble, worried a great deal, had a great deal of pain, neuralgic pains in his limbs and hands, and finally the pain centered in the top of his head and he was not able to sleep. After a time he made up his mind there were bugs on the top of his head and they hatched out and were crawling over him, and more bugs came until they went clear to his feet. The man kept wasting away. I think Dr. Herdman and perhaps Dr. Vaughan saw him. He disputed with me about its being bugs, for I had a pretty strong glass and I did not find any. He went to the barber and was shaved from the top of his head to his feet, sometimes twice a day changing his clothes. He went to Florida for his health, and from there to California and back again with his bugs. After he had seen the Ann Arbor gentlemen a second time and came back he said, "They say I have not got any bugs." "Well," says I, "I told you you didn't have any bugs." "Well, you see those in this paper"—he brought

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me a paper with a lot of bugs in it, but I found it to be coal dust under the glass. Now, was this a case where morbid poisoning was generated in the system from the mental force? He has recovered with time.

Now I wish to bring up another case. I have looked all through the literature and find in some of the old works the admonition to look out for the mind, especially in young girls. Two years ago a young lady was brought to me by her mother, who was wasting away. It seemed to be a general waste, although she had been under the best of care; not able to use her fingers for a few months; all natural functions ceased, and I sent her to one or two physicians to see if they could not find out what was the matter. I made up my mind pretty nearly what was the matter. Some said it was rheumatism. By some it was called neurosis. Finally when the case came back to me in this condition, with all the functions destroyed, not able to get from her bed, not able to sleep, not able to eat, I said to the father and mother if you want to save this girl you must go to work at the mind. She had promised to marry a young man, a very fine gentleman, but he was a Catholic and the opposition came from the parents from the the fact of his being a Catholic. I got the consent of this young man after he had left the country, had gone to Ohio—I got his consent to be married in her church. I told the parents so. They finally agreed to the marriage and wrote to the young man to come back, that everything was settled. Now I said to him "Take care of that patient. I am not going to give her any medicine. I want you to feed her what you can get her to take, and by the settling of these troubles in her mind I expect she is going to get well." And the time was set. Six weeks from that time she was going to get married. At the present time she is perfectly well with a nice family. Now what was it? Was it mind over matter? If it was mind over matter, what is our iodide of potassium going to do for her? What is iron going to do for us, what is anything to do for us until we straighten up the mental condition.

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DR. HITCHCOCK: In the case first related by Dr. Hueston it might be pertinent to inquire what the patient who had the bugs drank.

DR. HUESTON: I will say in regard to that, the gentleman was a physician and they never drink. He used a little good tobacco, never smoked, but he had lost his family, all dying of tubercular consumption.

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MILK DIETARY.

CHARLES DOUGLAS, M. D.,
Detroit.

The universal natural supply of milk in all mammalia as the only diet for their young during the first months of their life, and also the almost universal use of milk as the only diet for the human family during the first year or more of their lives has inspired us with great confidence in its suitability and absolute necessity as a food for children, and also for adults with tender stomachs. So much so has this become the case, so much has this suitability been taught and so long have we been accustomed to use it successfully that we have become blinded in a great measure to its occasional unsuitability in certain patients.

This occasional unsuitability applies not only to the delicate immature digestive organs of the young child, but also to the irritated, tender, weak or irregularly secreting digestive organs of the unhealthy adult. While in the vast majority of children and adults milk is the most nourishing and easily digested of all foods, yet in these same patients we find varying conditions of suitability according to the actual character of the milk itself. Nor does the unsuitability of this diet depend upon the changes in the milk alone. We have undoubted evidences that changes in the digestive power due to increased age in a child will render the difficulty in adjusting the milk less as the child becomes older. Also, in tender stomachs, either of child or adult, as the irritated condition due to previous dietary or disease subsides, we find the improved digestive power generally makes the milk food again successful. With the latter difficulties, age and disease, we are not at present interested.

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It is our purpose to look into some conditions of the milk where success does not follow an honest effort to use this food, and where a persistence in this dietary leads to damaging results. This occurs occasionally with adults, but most commonly with children, and mostly in the youngest of them.

Milk is of course subject to pathogenic germs, due to admixture prior to or after being drawn from the cow. These may cause most violent gastroenteric irritation as in cholera infantum or secondary gastric irritation by their rapid growth causing peculiar constitutional disturbance, as occurs in typhoid fever. In this way we may have local gastric or intestinal irritation as a secondary effect, but in these cases we find milk produces the most suitable and successful primary gastric results, if not fed too freely.

Where we find fresh cow's milk unsuccessful most frequently is in the very young child, generally under six months of age. I would not be understood as meaning that in children over six months old it is always satisfactory; it may be so, but in many it is not; and in those whose stomachs have been irritated by over feeding or unsuitable food, it is generally not successful. In fact in some of the latter cases the power to digest milk seems to be entirely lost, and it acts as a strong irritant or even as a poison in some patients. This difficulty will continue more or less for months in many of these children, no matter how the milk is modified.

We find this same difficulty occurs in dieting some adults in irritations where we generally understand milk to be the most satisfactory and successful aliment. It is well that we remember this, and be on the alert for that looseness of the bowels which follows as a direct result of milk dietary in those patients who cannot digest it. We have many patients who rebel against milk as a dietary, not because of indigestibility but on account of the taste or a prejudice. This repugnance is no guide to its digestive suitability, for we find these patients thrive under its use most generally. Unsuitability may occur in those who relish it most or depend upon the amount of the milk that is taken daily. Nature generally relieves this unsuitableness of food or amount thereof by

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emesis or by discharging it through the bowels. Thus we may by our persistence in following the milk food perpetuate the very pathological difficulty we are trying to relieve.

Of late medical journals, especially those devoted to pediatrics, have been replete with articles favoring the use of cow's milk in the natural or at most the pasteurized condition as the dietary for those children who cannot have human milk as a food. The recognition of several cases of scorbutus occurring lately in different cities with reports of these cases by different physicians has made this subject prominent. The rapid improvement of these cases under a raw dietary—fresh milk, beef juice, orange juice, etc., has, with the undoubted damaging influence to the healthy constituents of milk when boiled or sterilized, tended largely to influence the profession in favor of raw or at most pasteurized milk. While nothing can be said against this with many children enjoying strong digestive organs, especially those over six months old, yet the use of cow's milk, either raw or pasteurized, in children under six months old, is commonly attended with digestive disturbance. Under our present teaching raw milk is only safe under the most favorable conditions of age, season of the year, and digestive power in the child; also health, food and care of the cow; and lastly, cleanliness, temperature, caution, and industry in handling the milk.

All physicians who have paid close attention to infant feeding have observed frequently the great difficulty there is in adjusting cow's milk even by diluting, alkalinizing or any other treatment, to the stomach of the new born child or during its first half year of life. While it can be done successfully in some good stomachs, there are many who suffer from indigestion, green stools, colic, etc., and do not thrive. These latter cases may possibly continue with this food, even though it is thus unsuccessful, during the fall or cold weather. Their lives are endangered by it though in warm weather, and very many of those having occasional green stools die of bowel affections during the summer season. Of those children born in the late winter, spring or summer many will not

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survive the first summer if fed on fresh or even pasteurized cow's milk under the best management.

The exact difference between cow's and human milk is not yet so fully understood that we know what to remove, change, modify or add to cow's milk in order to make it always successful. Chemistry has done much to assist us and clear the way, but as yet in young and delicate stomachs the suitability of every alteration has to be proven by the child before we know that it is right. When we remember the marked changes produced in human milk by mental disturbances and extraordinary physical efforts, also by health and changes in dietary, we are forced to realize that great difficulty and the highest chemical skill will be necessary to enable us to recognize and correct similar sudden changes in cow's milk. Proofs of nervous disturbance in the cow, if not of mental, are seen in the changed lacteal secretion during rutting and the reduced flow of milk when the calf is removed at weaning; also physical effort shows its characteristic reducing power when animals are driven a long distance or have to walk far for water or food.

All who have had much experience with milch cows have been compelled to recognize the loss of milk secretion while the animal is suffering from any acute sickness. Coupled with this is of course the changed quality of the milk, which is generally recognizable even by the eye. One of the most marked changes is that produced by pregnancy, the milk becoming slimy in character and reduced in amount. The most imporant change in milk from purely health causes is that produced by tuberculosis in the cow. This is the more important as progress is so slow that it does not noticeably diminish the lacteal secretion and causes no changes in the milk recognizable except by microscopical or biological examination. Both of these processes are slow and tedious and also demand that high degree of skill which was not possible till within a few years. Even now few physicians can spare the time from their patients to carry on such laboratory work, and a lesser number of them are possessed of that high degree of skill necessary for the correct conduct of these intri-

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cate processes. It is much preferable for most physicians to relegate their investigations to those skilled in such work. There is always time for such tubercular research. Limited efforts are being made in some states to eliminate tubercular cattle from herds by using tuberculin as a test for this disease, but as there is some uncertainty in the results obtained, and as changes are continually occurring in herds, this method is not as yet a reliable one.

It has been considered certain that tubercle bacilli would not appear in the milk of a tubercular mother so long as the mammæ were free from evidence of tubercular infection. While I have seen no evidences contrary to this in the human family, yet veterinarians show that such is the case in the cow. Rabbits and guinea pigs injected with milk from cows whose udders were healthy and free from all irritations, but in whom tubercular injections showed the characteristic elevation of temperature indicative of tubercle, soon showed marked tuberculosis. The importance of such results cannot be overestimated, and must make us hesitate and reconsider our practice on this very vital subject. Some may say on this point that clinically we have not this evidence of rapid tubercular infection in the human family. We must remember that such evidences are not obtained so decidedly by stomach infection, as there the bacilli have to contend with the gastric secretions, and gain an entrance into the blood circulation only through feebleness or errors in digestion. That bacilli do enter through the digestive tract is proved by the extra prevalence of tubercle in pigs fed from the waste milk of creameries. This should make us careful to institute thorough research into the etiology of many obstinate chronic digestive derangements and changes in other abdominal organs in young children. It also may explain largely the greater prevalence of abdominal tubercular affections in children than in adults, due to the increased milk dietary of childhood.

By far the most common and most important element in changing the quality of cows milk is her food. It is not necessary to dwell on the great necessity for fresh water in

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abundance at all times. This is an absolute necessity, which cannot be doubted when we witness the striking changes produced by impure or new foods. We are all familiar with the ready response of the lacteal glands to increased dietary within the digestive power of the animal. We are also familiar with the deleterious changes produced by certain foods. In country districts this is shown most decidedly after feeding certain roots or vegetables, as turnips or cabbage, also frozen foods. In cities we see this evidence from feeding waste products from breweries, distilleries, fruit and vegetable canneries, vinegar factories, etc. So deleterious and general are these results in the cities that it is the exception to find milk made in or within daily driving distance of the city digestible with children under six months old, or even with many under a year old. It is questionable if it should be used with any child, even though no digestive derangement be present. While the digestive power may be able in older children to consume such milk, yet the fact that it is unsuitable in the more delicate test of a younger child's digestion should debar it from being a considerable part of any child's dietary.

Milk made in the country where we understand nothing but natural farm produce is fed, without any preparation except perhaps the grinding or cooking of grain, is not always of the same quality or acceptable to young nursing children, or any with tender digestive organs. This is as should be expected, when we consider the very diverse conditions of nursing and feeding incident to the changes of the seasons, and also to the very different fodder consumed in the different seasons. A momentary glance at these features, compared with what we find necessary, and demand always in the human family, will convince us it cannot be otherwise. We must expect results there as we findthem in nursing women under like conditions.

We find that the administration of laxative medicines or foods to mothers always start loose, green stools in the child. This is almost invariably the result. Now when we subject the cow to these foods or medicines we also get the loosening effect in the milk. Enough of the laxative element is con-

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veyed through the lacteal glands to cause indigestion, colic and loose stools in the child. The application of this truth is most strongly and commonly exemplified when cows are first turned out to graze on the new grass in spring. The now unlimited amount of food, with the change in quality, causes a very decided change and looseness of her stools. Whether this be due to excessive feeding, the action of the fresh grass, or the purgative power of weeds and herbs eaten in the grass is immaterial. The result is a milk entirely different in taste, quality, quantity and appearance. This milk will produce in the young nursing child the same relaxing effect on the bowels that the food has done in the cow. The stools will be green, slimy and watery and cause considerable colic, restlessness and paleness in the child. As the season advances and the weather becomes dryer we find different grades of grass on high and low ground. The cow recognizes this difference as can any time be seen demonstrated in a pasture when she persists in grazing on the short spare grass of the high ground and tops of ridges and avoids the plentiful longer green supply in the furrows and lower ground. In this advanced condition of the grass we find fewer weeds and herbs, as they mature early, and also do not see so marked loosening effect in the cow, or in the child's stools when fed on milk at this season. Whether this be due to the changed character of the grass or the absence of weeds and herbs it is difficult to say; but it is probably due to the latter, for we do not find them in the dried hay which certainly does not give this marked result on milk when fed to the same children during the winter season. The great abundance of taraxacum, commonly called dandelion, in the first spring grass and the greed with which the cow then eats everything green would tend to endorse the fact that this aperient influence on the milk is due to the admixture of herbs in the food and not the grass alone.

When we realize that there is always some difficulty in digesting cow's milk, we cannot overlook the importance of recognizing any and all sources that add to this difficulty. The question arises in the spring season then whether it is safe and prudent to continue the fresh milk dietary. I have

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found some young patients and also older ones with sensitive stomachs who take milk well from stall fed cows in winter and early spring, but who at once show green, slimy and curdy, loose stools as soon as these cows are turned out to graze on the fresh grass. In fact I have used this milk for its laxative effect when that was needed, and with good result even in some adults.

We must not loose sight of the increased amount of cream or fat which new grass milk may show, as this causes a laxative result on some children. From some limited examinations I have found cream increased twenty-five per cent., and have felt uncertain about its causing this relaxing result.

When we remember the discriminating power which the cow's taste affords for the grass in high land in preference to that grown in low parts, may it not be possible that the milk made by animals perpetually grazing on low flat lands is less suited for a diet than that made on high ground? This seems the more reasonable when we remember how quickly green colicky stools appear in a nursery child when a bitter tonic, such as quinine or gentian, is given to the mother.

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THE OUTLOOK IN SERUM THERAPY.

CHARLES T. McCLINTOCK, M. D.,
Ann Arbor.

A year ago, in a paper read before this Section, I stated that an average of the reports from serum treatment in diphtheria showed a reduction of fifty per cent. in mortality. I repeat this statement to-day with all confidence. Then we had reports from a few thousant cases, to-day from hundreds of thousands With the profession at large there is no longer any question as to the value of this treatment. Here and there some belated traveler may be heard crying that we are on the wrong road, that trouble and disappointment alone await us. The observer whose opposition has attracted the widest attention in the past year is possibly Dr. Lenox Brown, of London. Dr. Brown is a very able man, an authority on many subjects. He attacks the statistics, makes much of the harmful effects of the serum, and enters a general denial against all the claims of good. The best answer to Dr. Lenox Brown's objections is not a review of all the facts and figures, but the recently issued report of the Medical Superintendents of the Metropolitan Asylum's Board of London. This report covers some six thousand cases of diphtheria treated in these hospitals; in round numbers, three thousand without and three thousand with the serum treatment. Their conclusion is that not less than two hundred and fifty lives were saved in 1895 by the antitoxin that would have been lost under the old methods of treatment.

There have been some improvements in the production of serum that are worthy of note. A year ago, in a vial of ten c. c., we thought we had a very good serum if it contained one thousand units. Now we have one containing five thous-

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and units, and I think it altogether probable that by the end of the year we can have a serum of such strength that a ten c.c. bottle will hold ten thousand units. This is an important advance. To inject ten c.c. of anything into a child is a heroic procedure. But the injection of one or two c.c. is quite another matter. Two c.c. of this stronger serum is a full curative dose for an average case; seven minims is an immunizing dose. There are certain unpleasant complications, urticarias, rheumatic pains, etc., that not uncommonly follow serum injections. In general these are proportional to the amount of serum used. We expect to note a very great diminution in the annoying sequelæ from these stronger serums. Allow me to call your attention to a mistake which I believe many practitioners are making. They argue in this way: "Ten cubic centimeters can be injected without harm. Now if I can get a serum that contains from two to five times the antitoxic power of that I have been using, I will inject the same amount and will get control of the disease in proportion to the strength of the antitoxin." This, I believe, is mistaken reasoning. It is very well established that this serum is not directly antitoxic, *i. e.*, the serum that you give does not of itself destroy the poison. It in some way nourishes or stimulates the cells of the body, and they in turn destroy the toxin. It does not follow, either in theory or in practice, that you will get this needed stimulus better from five thousand than from one thousand units. In fact, in so far as I can judge, from a somewhat careful examination of many reports, Behring's original recommendation, 250 units for immunizing, 500 to 600 for mild cases, 1,000 for average, and 1,500 for severe cases, repeated as necessary, still give the best results. On theoretic grounds I believe that even smaller doses repeated more frequently would give better results. Remember the toxin is not produced all at once, but continuously through the course of the disease so long as the germs are growing.

The marvelous results obtained in diphtheria very naturally led to enthusiastic work in all microbic diseases. At first it seemed that the same methods could be applied and like

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results obtained in all of the communicable diseases. And yet, after an enormous amount of work done by careful and skillful investigators, the results obtained are very disappointing. Typhoid and cholera, tuberculosis and smallpox are still unconquered. Why is it that a method applicable to diphtheria will not give as good results when applied to tuberculosis or typhoid? They have similar causes; the germs in these diseases as well as in diphtheria or tetanus can be isolated, pure cultures grown, toxins produced. The chief reason for the failure, I believe, is in this. In an ordinary case of diphtheria there are relatively few germs, confined to a very limited surface. But these germs produce a large amount of a very virulent poison, so much that every tissue of the body may feel its harmful effect. In tetanus this condition is even more pronounced. The germs are confined to the neighborhood of the wound and are so few in number that the skilled bacteriologist must make repeated examinations, or cultures, to find them at all. And yet these few germs will in the average case produce sufficient poison to cause death. How does this compare with tuberculosis, for example? One estimate has it that in the last stages of this disease as many as four billions of the germs are expectorated in a day. This, I take it, without claiming any exactness for the figures, is a far greater number of germs than is produced in the entire course of a case of diphtheria or tetanus. Yet in pure, unmixed, non-septic tuberculosis the amount of toxin produced, measured by the temperature curve and general symptoms, is small. To illustrate: Here is a tetanus toxin grown in bouillon from an old and presumably weakened germ, with no attempts to increase its virulence. Of this one five-hundredth c.c. is fatal to guinea pigs. Here is the toxin from the tubercle germ, grown as carefully as can be. This has been concentrated to one-tenth of the original bulk, and yet it requires from 2 to 5 c.c. to kill a guinea pig. At the lowest estimate the tetanus toxin is 10,000 times as strong as that obtained from the tubercle germ. Conversely, it is probably a safe estimate to say that in the average fatal cases of these two diseases there are a million times as many

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tubercle germs produced as in the case of tetanus. I believe I am justified in saying that in tetanus it is the toxin that kills while in tuberculosis it is the germs. The old name consumption is correct, the disease is a literal eating up of the tissues by the germs. Bearing these things in mind, the success of the method in the one case and its failure in the other can be understood. To cure tetanus we need an anti-toxin, while for the cure of tuberculosis we must have a germicide. The anti-toxins of tetanus and diphtheria are not germicidal. Such an agent is not needed; free the tissues from the harmful effects of the poisons and they will easily take care of the few germs present. But not so in tuberculosis. Neutralize or destroy all the toxin and you still have left in an advanced case untold millions of germs feeding on and literally eating up the tissues in which they are located. I would not say that the toxins in tuberculosis are of no importance, but in an uncomplicated case I think the toxin is relatively unimportant. In the work of the past year these theoretic conclusions have received some experimental proof. Pfeiffer and his assistants in the Berlin laboratory have shown that the blood serum of an animal or man immune to cholera can help an animal infected with cholera germs, but it does so, not by destroying a toxin, but by killing the germs themselves. Further, that the direct germ-destroying power of this immunized serum is small; but that when injected into the infected animal it so stimulates or assists the cells that they or their soluble products can in turn destroy enormous numbers of germs. Pfeiffer illustrates this in the following manner: A drop of the immunized serum is placed in a test tube with a portion of a bouillon culture of the cholera germ. This is left at the body temperature. Exactly similar amounts of serum and culture are injected into the abdominal cavity of a susceptible animal. In another control animal an equal quantity of the germ culture is injected without the serum. After a given time the containers, the test tube and the abdominal cavity of the animals, are examined both microscopically and by the plate method. It is found that a few germs have been killed by the drop of serum in the test tube,

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while in the animal receiving the mixture the most or all of the germs have been destroyed In the control animal the germs have increased in number.

Note the exact similarity here, both in theory and in results, to that advocated by Dr. Vaughan and myself several years ago in explaining the action of the nucleins in the body. Results corresponding in general to the above have been obtained with typhoid; results which go far to show that in these diseases at least curative effects are produced by germ-destroying rather than by antitoxic agents.

A BRIEF SURVEY OF THE VARIOUS SERUMS.

Erysipelas Serum for Malignant Tumors. There have been a few apparently well authenticated cases where an intercurrent attack of erysipelas has markedly benefited and in a few instances cured malignant neoplasms. Following this indication several experimenters have inoculated the site of these tumors with the germs of erysipelas, but this procedure proved entirely too dangerous. Whatever the effect on the tumor the patient often died.

Coley then attempted the treatment of these tumors with the toxins of erysipelas. He claimed very favorable results, but in other hands the treatment, although still occasionally used, has not given satisfaction.

Emmerich and Scholl, the former a well-known bacteriologist, conceived the idea of preparing a serum that would antagonize the growth of these tumors. They injected sheep with carefully prepared virulent cultures of the erysipelas germs. These injections were continued for some time. The serum from the sheep was then used for injection into the neoplasms. In theory they were not attempting to produce an antitoxin in the sense that we understand that word. Their theory is practically the same that Klebs advances for his antiphthisin. A germ produces both toxic and antitoxic bodies. Although there has been no experimental proof of any such condition, the possibility of its truth seems to have impressed many of the German investigators. Klebs claims that he can take tuberculin and by chemic methods remove the poisonous substances and retain the curative ones.

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Emmerich and Scholl used the animal body for this purpose. It was to be a separating filter, the poisonous substances eliminated and the anti-poisons or toxins stored in the blood of the injected animal. By repeated injections a large amount of these curative bodies could be stored in the blood and this in turn used for the treatment of disease in man. These authors believed that they had found a specific cancer heilserum, and notwithstanding the failure of the remedy in the hands of Bruns, Czerny, Petersen, Reinebroth and others, they persist in asserting that the serum does cure, and in this they are supported by a few clinicians. Bruns thinks it probable that in case there is amelioration it is not due to any specific action, but results from the fever induced causing fatty degeneration, and cites numerous instances of neoplasms degenerating in other fevers, as in typhoid, meningitis, etc.

Other experimenters have injected extracts or suspensions of tumors into animals and then used their serum for injections. There is little promise in this work. For the present judgment must be suspended. Meanwhile, despite the enormous amount of work done in the past three years attempting to find the cause of these growths, it remains that for the cancerous diseases there is no cure and no palliation save narcotic sleep to the end.

Cholera. Ferran, a pupil of Pasteur, in 1884 showed that guinea pigs could be made immune to cholera by the injection of gradually increasing doses of bouillon containing cholera germs. He did not follow up this work in a scientific manner but immediately began injecting men. Large numbers submitted to inoculations. In Spain 25,000 were injected in one year. He even advocated that wells should be infected with the germs, so that those drinking the water should be gradually immunized to the disease. He did not use pure cultures but grew them from fæces of cholera patients. This was shortly after Pasteur's notable discoveries on vaccines. Ferran saw that the serum of men who had recovered from cholera had immunizing properties and he used this in treating other individuals. He had discovered the underlying principles in our present methods of serumtherapy. He made the

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fatal mistake of keeping his methods secret. Ferran's methods were dangerous, his results uncertain and his professional attitude deplorable.

Haffkine, another of Pasteur's pupils in India, has continued this work of vaccinating against cholera, injecting 40,000 men last year.

Lazarus was the first to demonstrate that the serum of men who had recently recovered from this disease would confer an immunity on guinea pigs against the intra-peritoneal injection of cholera germs. Since that time many investigators have busied themselves with the problem of immunity and cure in this disease. There is at present a wordy discussion in progress as to whom belongs the priority for some of the principal discoveries. Pfeiffer of the Koch school in Berlin claims to have discovered a new ground for immunity. He finds it easy to immunize animals so that their serum can be used to protect other animals against the disease. But the interesting and important part of this work is the light thrown on the nature of these anti-bodies contained in the immunized serum. Pfeiffer finds that these anti-bodies have a specific action. For example, when a mixed culture containing the cholera germ along with various other species is subjected to this serum the cholera germs alone are destroyed. Even when the mixture consists of morphologically related germs, vibrios, the germs of cholera alone are attacked. He believes that in this we will have an entirely reliable proof of the presence of this germ that can be applied in diagnosis.

This serum can in the test tube destroy a certain number of germs and a far greater number in the body. By heating the serum to sixty degrees its ability to destroy germs in the test tube is taken away; but when injected into the body it still exerts its immunizing power and destroys the germs. His explanation for these facts is that there is a sort of specific enzyme having two stages, an inactive and an active one. He compares these with glycogen and glucose. The serum does not contain the active substance but a precursor of it. When this serum is injected into an animal the enzyme-like body becomes active, capable of destroying large number of

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germs. He finds that this immunized serum has no antitoxic action, but is strongly germicidal. As to the chemic position of this body his results are negative. He thinks that he proves that it is not an albumin, as it resists peptic and pancreatic digestion; that it is not a nuclein; that it is not a peptone, albumose or salt; for when freed as far as possible from these substances it still exerts its specific action.

Here we have a direct experimental proof of artificial immunity due to a germicidal action, not to an antitoxin, and we are probably justified in concluding that in natural immunity the same principle is true. The body protects itself by an ability to destroy the introduced germs. Pfeiffer does not think that the serum treatment will be of much value in well developed cases of cholera. We are getting nearer and nearer to an understanding of how the body defends itself from the attacks of disease germs; and when once we understand this the hope is justified that we can lend assistance when there is need.

Anti-Streptococcic Serum. Puerperal fever, erysipelas and certain of the septicemias are due to streptococci. This class of germs often attacks the weakened tissues and modify and complicate such diseases as scarlet fever, diphtheria, tuberculosis and broncho-pneumonia.

As soon as it became certain that serum treatment as practiced in diphtheria and tetanus was successful, a number of observers turned their attention to the diseases caused or complicated by streptococci. It was easy to see that a serum that would successfully check the attacks of these germs would have a wide range of usefulness, far greater, indeed, than that for diphtheria.

To obtain an antitoxic serum was the problem. But there were difficulties in the way. At the outset, here are several varieties, possible species of the germs. Suppose we obtain a serum antitoxic to the germ found in erysipelas. Will it have any effect on the germ found in puerperal fever? I may say that it has been shown that the serum of an animal made immune by the germs or toxin obtained from any one of these diseases is antitoxic to the whole group of strepto-

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cocci. So far as we know, one serum can be used against this whole class of diseases and complications. Another difficulty: The streptococci did not take kindly to our artificial nutrient media. We would isolate the germs from a case of erysipelas, for example. In the first culture we would have a moderate growth; in the next it would be feeble, and after a short time it would die out altogether. Even in our most recent cultures neither the germs nor their toxins were very virulent. For example, it requires something like fifteen cubic centimeters of a buillon culture of the germs to kill a half grown rabbit. After a careful study of the question Marmorek was able to increase the virulence of the cultures in an almost incredible manner. He claims to have fully obtained cultures, by growing in a mixture of human blood serum and beef bouillon and alternately passing through animals, so virulent that one one-hundredth billion of a c. c. was fatal to rabbits. With these cultures he immunized his animals.

This serum has been extensively used in the hospitals of Paris in treating the streptococcus diseases. Puerperal fever has, fortunately, become so infrequant that it will require some time before sufficient experiments can be made to show the value of the serum. The most striking results obtained with the serum are reported for scarlet fever. While we are wholly ignorant of the organism causing scarlet fever, we are quite sure that many of the complications of the disease, the throat, ear, kidney and heart lesions, are in part at least due to streptococci. The Paris clinicians report very favorable results from the treatment. Baginsky in Berlin reports on the treatment of fifty-seven cases with the serum supplied by Marmorek and Roux. He says that owing to the small supply of the serum, he was not able to give in most or his cases the dose recommended by Marmorek. The death rate was 14.6 per cent., while the average death rate from 1890 to 1895 in this hospital was 24.9 per cent. He believes that but little importance is to be attached to these figures, owing to the great variation in the mortality of this disease, and concludes that he is unable to draw any conclusion from his

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experiments except that the disease was no worse for the treatment and that he intends to continue its trial.

In measles, as in scarlet fever, we believe that the complications are for the most part due to streptococcus infection, and the serum should be equally efficacious here.

It seems to me, although I have seen no suggestions for such application, that the greatest field for usefulness for an anti-streptococcus serum would be in tuberculosis. For some years the belief has been growing that pure, uncomplicated, non-septic tuberculosis is relatively mild, curable and often self-limited disease. It is the complications that kill in tuberculosis. Most of us will agree that when there is any benefit from the administration of creosote and its allies it is due to the action on the septic processes and not on the disease itself. And not a few hold that the chief, though not the whole benefit of mountain climates is the aseptic atmosphere. Most of you are probably familiar with the work published by Prudden last year, where he conclusively showed that for rabbits, at least, cavity formation in tuberculosis was almost entirely due to secondary streptococcus infection. Now, if with this serum we can hold in check the septic processes we will have half conquered the disease. Although the work with this serum is still in the experimental stage, the outlook is very promising.

Anti-tubercle Serum. Maragliano, Boinet, Picq, Babes, Maffucci, Paquin and others have reported work in this line. Most of them claim good clinical results. But tuberculous patients under any treatment, and without any, often improve and occasionally get well. So that, whether with justice or not, the claims of these investigators have met with but little approval. In experimental animals the best results I have seen reported are a prolongation of life in guinea pigs from an average for untreated animals of some fifty days to ninety in the treated ones. No treatment yet devised, be it serum or anything else, can save a guinea pig when inoculated with tuberculosis. And while our experimental animals are far more susceptible to the inoculated disease than man, the pro-

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fession at large will be slow to trust any remedy that can not give demonstrable results in animal experiments.

Anti-pneumonic Serum. The work of the Klemperer brothers on the immunization of rabbits against pneumonia has been followed up by Emmerich and Fowitzky, Redner, and Foa and Carbone. It has been possible to immunize a rabbit so that it would withstand more than three hundred thousand times the fatal dose of the germs for an untreated animal. With serum taken from such highly immunized animals it is possible to save inoculated rabbits if the serum is given five hours or earlier after the infection. In rabbits pneumonia is often fatal in twenty-four hours. The duration of the immunity produced in rabbits is long. After three months they resist fatal doses of the germs. So far as I know, the successful immunization of larger animals capable of producing serum in quantities sufficient for the treatment of the disease in man has not yet been reported.

Anti-rabic Serum. Following the general lines of procedure in this field, the Italian bacteriologists have produced a serum for the treatment of hydrophobia. Their experimental work seems to be convincing. They claim many advantages for this serum over the Pasteur method of vaccines. The claims are that results are more certain and the dangers of treatment lessened, and of even more importance the serum keeps well and can be used anywhere by any practitioner.

Anti-venom. Drs. Calamette of Paris and Fraser of Edinburgh seem to have succeeded in producing a very satisfactory serum for antagonizing snake poison. That animals could be immunized to these poisons was shown years ago by Dr. Sewell in Michigan University. It seems that the serum produced from the venom of any one of the serpents is antagonistic to the poison of the whole group.

Typhoid. In general the statements I have made in regard to cholera are true for typhoid. Animals have been immunized and a protective action can be demonstrated, but clinically the results are not convincing. Here, as in cholera, a germicidal instead of antitoxic action is shown, but where in

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cholera there is a specific action against one germ, it seems that in typhoid the serum antagonizes all related germs as the coli group. This is as we find it in the streptococci.

Syphilis. It is well known that one attack of this disease confers an almost perfect immunity against subsequent infection. Attempts have been made to borrow this resisting power. The serum of persons who have recovered from the disease has been injected into those who have been recently infected. Again syphilitic nodules have been macerated and this material injected into animals and their serum in turn used for the treatment of the disease. Good results are claimed from the serum of animals that have been treated for some time with mercury and iodids.

Small-pox. Practically the same experiments have been tried with small-pox, the serum of immune individuals being used. Again, the serum from vaccine heifers that have become refractory to the inoculation has been used in treatment. Thus far the results of this treatment in these two diseases have not been noteworthy.

Possibly the best thing I have to report in the line of serum-therapy is the continued growth of the belief that disease can be conquered; that, knowing the cause and the methods of many disease processes, we can and will find preventative or curative measures.

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ICHTHYOL AND SOME OF ITS USES.

EMMA D. COOK, M. D.,
Detroit.

It is not in a dogmatic sense that I desire to present to the members of this society "Ichthyol and Some of Its Uses." Indeed my experience with the drug has been far too limited to present it in any other than an interrogatory manner. I have, however, been deeply interested in the study of its therapy, and in my research for facts to substantiate my convictions of its virtues I have become thoroughly impressed with the belief that it is a drug of more than ordinary merit, both for internal and external treatment of disease. The drug is obtained from a bituminous mineral found in Tyrol. As the name indicates, the mineral is rich in fossilized remains of extinct fish, which by dry distillation yields an oil containing sulphur in chemical combination. By treating the oil thus obtained with sulphuric acid and subsequently neutralizing it with carbonate of ammonium or sodium, sulpho-ichthyolate of ammonium, chemical formula, C_{22} H_{36} S_3 O_6 (N $H_{4/2}$) or sulpho ichthyolate of sodium, C_{22} H_{36} S_3 O_6 Na_2 is

The ammonium salt, the one generally employed in medicine, is a brownish-red, viscid, evil smelling mass, miscible with water, glycerine, oils and petrolatum, and partly soluble in alcohol and ether. The sodium salt is a dark, tar-like substance of an alkaline reaction, perfectly soluble in water. Both preparations are rich in sulphur, each containing about ten per cent of this mineral.

It is to the sulphur that its chief therapeutic value is ascribed, and despite the fact that it has a disagreeable taste and odor, it is steadily gaining in popularity.

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One important factor in its favor is its non-toxic action, which has been repeatedly proven by experiments upon both man and the lower animals.

If the drug is obtained pure we need have no fear whatever of untoward action from either internal or external use or even hypodermatically.

On account of its uses, internally as well as externally, its therapeutics cover a wide range of diseases including inflammatory conditions of all kinds.

Its antiphlogistic action is marked on account of its contractile effects upon vascular tissues. It is also claimed that it has germicidal properties which aid in the destruction of certain bacteria, particularly the erysipelas cocci, its action being regarded as almost specific in the treatment of this disease. Its internal use has undoubtedly been less thoroughly tested on account of its disagreeable taste and odor, and although several of the leading pharmacists have a fine preparation in pill form, its expense classes it among the high priced drugs and may detract somewhat from its extensive use. Its value as an internal remedy has been proven in many instances, its curative properties being attributed to its building up of the albuminoids of the body by promoting nutrition and assimilation and retarding the breaking down of nitrogenous substances.

Merck & Co. of New York have published a formulary containing a large number of prescriptions and clinical reports. The reports are mainly from German authorities and include the treatment of skin diseases, acute tuberculosis, rheumatism, peritonitis, and in fact almost all acute inflammatory conditions. Its use in gynecology is also discussed and a tabulated result of treatment is given. For vaginal use ten per cent of ichthyol with glycerine was applied by means of tampons. In extensive pelveo-peritoneal exudation a twenty per cent ointment of ichthyol with lanolin or vaselin was rubbed in over the abdomen, and to those having poor appetite and indigestion ichthyol pills were given. The following table shows the result in 100 cases:

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	Cases.	Completely cured.	Much improved.	Little improved.	No result.
Pelveo-peritonitis	15	6	7		2
Parametritis	40	14	17	6	3
Retro-uterine exudations	28	10	8	7	3
Salpingo-oophoritis	17	4	7	2	4
Total	100	34	39	15	12

Dr. Rom. Polacco, the surgeon to the gynecological department of General Hospital at Milan, in a report for March, 1891, and Aug., 1892, records an experience of 792 cases from which he formed the following conclusions:

"(1) Ichthyol is the most powerful analgesic remedy hitherto known and used in gynecological practice.

(2) Ichthyol possesses an undoubtedly resolvent action in affections of an exudative character.

(3) In its manifold effects as an analgesic and resolvent ichthyol is the most important development of modern therapy for females."

In the Therapeutic Gazette of July, '94, is given the treatment of pulmonary tuberculosis with Ichthyol by Dr. Cohn of Hamburg. He administered the drug in the following manner: Taking equal parts of ichthyol and water, he began treatment by giving one drop three times daily, increasing the dose by one drop daily until the maximum of forty drops three times a day was reached. He claims that patients became readily accustomed to the taste; that there was no nausea or anorexia following, and the results were far superior to those from the use of creasote and cod liver oil.

My experience with ichthyol in skin diseases has been limited. A case of chronic eczema on the forearm with marked induration was greatly benefited by a local application of a twenty per cent. ointment of ichthyol and lanolin. The induration disappeared, the irritation was relieved, and the diseased part resumed a natural healthy appearance.

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Several cases of facial acne have been greatly benefited by combining internal with external use of the drug. These patients are generally neurotics and do not readily digest and assimilate their food. The internal treatment promotes appetite, aids assimilation, and many though not all cases that I have treated in this way have been cured or greatly benefited. A case of acute tuberculosis which was too far advanced to hope for a cure was temporarily improved by internal doses of fifteen minims daily. The patient had lost all desire for food, the stomach had become disturbed, creasote and cod liver oil and in fact all food and medicines were rejected. The temperature rose daily to 103 and the marked and rapidly increasing emaciation led me to search for something which might temporarily stay the ravages of disease. Noticing the article in the Therapeutic Gazette previously mentioned in this paper, I determined to try it. The results were better than I believed possible. The daily temperature was lowered, the appetite increased, food was relished and retained on the stomach, and the improvement, although temporary, was so marked that her friends were inspired with a hope for her ultimate recovery. The appetite continued good during the remainder of her illness.

Mrs. B., aged 33, came to me for treatment giving the following history: Two years previous had an attack of pneumonia from which she had never recovered. Subsequent cough produced by the slightest cold had gradually increased. Morning cough with expectoration, loss of appetite, night sweats and general malaise had alarmed her. I gave her one pill of ichthyol three times a day, the daily dose to be increased by one pill a day until nine pills were taken daily. This, with a mild expectorant, constituted the treatment. On her first return to my office she remarked that if she could only get enough to eat she thought she would soon be well. There was a marked decrease in the daily temperature, the cough was less troublesome, and a general marked improvement. After three months treatment I dismissed the case, and for nearly two years she has had only a slight

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recurrence of cough from a cold which has readily yielded to treatment.

The following is a history of a few cases which have given marked beneficial results from the use of ichthyol in gynecological work:

Mrs. B., aged 27, married twelve years, had three miscarriages and no living children, gave a history of pain in the back and left ovarian region, some leucorrhœa, painful menstruation. Examination showed uterus enlarged, retroverted, with congestion and almost complete closure of inner os, left ovary prolapsed. I dilated and made intra uterine applications of ichthyol, and used tampons medicated with the same. This treatment was kept up twice a week for about four months. At the end of that time the patient was cured.

Mrs. G., aged 30, gave a history of irregular and excessive menstruation, pain in the back and head. Examination showed uterus retroverted and fixed, left broad ligament thickened. A few weeks of treatment lessened the thickening and adhesions, and the retroversion was overcome with the use of a proper pessary.

Mrs. F., aged 22, had a history of scanty, irregular and painful menstruation, some leucorrhœa. This patient had tubercular trouble of her lungs, for which she was at the same time taking treatment in another clinic. Examination showed an inflammatory condition which is characteristic of tubercular troubles, with a profuse discharge. Under treatment the pain ceased, menstruation became more regular, the distressing symptoms were relieved.

A case of gonorrhœa with enlarged inguinal and vulvovaginal glands, profuse discharge, painful micturition, etc., was treated with ichthyol, and the results were more satisfactory than I have had with other forms of medication.

I have at the present time a case of pelvic peritonitis which has thus far given better results from its use locally than those obtained from other medicinal agents.

A patient came to my office three weeks ago with the following history: Age 55, mother of five children; since the birth of her youngest child, nine years ago, her menses had

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been irregular and three years ago had entirely ceased. Previous to menopause she had pains in her back and head. For the past three years she has had profuse discharges, sometimes of a bloody character. She had also a pruritus vulvæ which caused her to seek medical aid. Examination showed the uterus freely movable, retroverted. Uterus and appendages normally atrophied, vaginal walls highly congested with ecchymoses of vagina and vulva. The entire mucous membrane bled at the slightest touch, which evidently caused the hemorrhage. I applied ichthyol to vagina full strength, made an application of the same to the ecchymoses on the vulva and enveloped the cervix with a tampon medicated with a 50 per cent solution. The patient complained of some soreness from the treatment on her first return. She has taken treatment twice a week and at the same time taken three pills of ichthyol daily. The results have been gratifying. At her fifth treatment she said she felt perfectly well, noticed no discharge and questioned me as to whether she was not entirely cured.

I have treated a large number of cases in Harper Hospital polyclinic with marked benefit, but as most of the cases drop out before complete recovery the reports are not entirely satisfactory.

From my experience I have no hesitancy in recommending the use of ichthyol in gynecological work, particularly in the class of cases having adhesions and exudations and in all cases of diseased tubes and ovaries where there is free drainage.

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ASEPTICISM IN MIDWIFERY.

GEORGE K. JOHNSON, M. D.,
Grand Rapids.

The germ theory of disease is now so firmly established and so generally accepted that it may be regarded as a fundamental principle of pathology. Indeed, no principle of physics or biology has a more secure basis of facts. But the full import of the doctrine and the full scope of its applicabilities in practice are not yet, perhaps, sufficiently recognized. Surgery was quick to see and to utilize them, and so far it has reaped much the larger share of their benefits. Under the old regime solutions of continuity, whether small or great, often failed to do well. They failed to unite promptly, they inflamed, swelled and festered. These morbid processes extended to adjacent parts, and finally systemic disturbances supervened.

Then, not many years ago, came the discovery that all these phenomena were the results of toxic materials, or infections, introduced from without. Then came the further revelation that living germs; microscopic fungi, were the pathogenic agencies.

It was seen, as a logical inference, that if these germs could be excluded or destroyed, the morbidities referred to would not ensue. Asepticism grew out of this thought.

The recent prestige of surgery, its marvelous reaches and its brilliant achievements are largely due to these discoveries.

But it must not be thought that these great advantages are limited to the field of surgery. The surgeon indeed should not monopolize them. They belong equally to the province of obstetrics, and the accoucheur should see to it that the

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function of maternity enjoys the safety and the comfort they bring.

This is the keynote of this brief paper. My plea is for a more thorough and systematic employment of asepticism in midwifery, to the end that the lying-in period may find exemption from many of the perils and discomforts that have hitherto attended it.

In practice, every case of labor, whether easy or difficult, should be regarded and managed as a traumatism. Some solution of continuity in the genital tract always or nearly always occurs. There are erosions, scratches or denudations of the mucosa. There are also lacerations, slight or extensive, of cervix or perineum, as well as of cellular and muscular textures. The surgeon would view such lesions as open gateways for the intromission of pathogenic bacteria, and would employ antiseptic prevention accordingly.

Why should the obstetrican neglect to do so?

Until recent years lesions of continuity were treated without asepticism. Germ infection and its prevention were not understood. Under this old method some cases did very well; but many did very ill; a cut or a laceration of the finger, for example, inflamed, swelled and festered. The inflammation sometimes crept along the lymphatics and cellular planes to the hand and arm; and suppuration, sloughing and pyrexia followed.

Old practitioners were quite too familiar with such phenomena, and were always in dread of them. At this day such lesions are treated antiseptically, and none of these ill effects follow. There is prompt repair, without extension of disease, without inflammation, suppuration or fever.

It must be borne in mind that the lesions of the genital tract in childbirth are, both as to pathogeny and repair, parallel traumatisms. Both are under the same natural laws.

When these purturient injuries are treated in the old way, as was the injured finger in my example, they behave as that did. They inflame, suppurate and perhaps slough, but the trouble does not always stop here. Having infective and invasive qualities it spreads upward along lymph channels or

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by endosmosis until septic fever and inflammation are developed.

Before the antiseptic era, or approximately before 1880, maternity hospitals the world over were the scenes of suffering and of great mortality. Women went to them as to their doom. Statistics which I do not give and authorities I do not quote, because they are accessible to all, fully support this statement. But these institutions were the first to undergo reformation on antiseptic lines, the first indeed to catch the glow of the modern light. As a result postpartum sickness in them has almost disappeared and the mortality reduced from six, ten, fifteen and even twenty per cent to a small fraction of one per cent. Are obstetricans not to profit by such a lesson?

In home practice there has been a corresponding improvement whenever and wherever these principles have been faithfully applied. Under such auspices these disorders become very infrequent, their type mild and their mortality trivial. I have myself seen this beneficent transition.

It is not my purpose to specify all the disorders of childbirth which have this infective origin. The so-called puerperal fever, inflammation of vulva, vagina, uterus, tubes and peritoneum are the most common.

What has been said of septic infection after childbirth applies with equal pertinency to miscarriage. When that accident is not treated on the principles here considered, it is, as everyone knows, very liable to have most unpleasant sequences. Indeed all the ills and dangers of miscarriage, except hemorrhage, may be attributed to septic infection.

Again, it is well to bear in mind that the disorders which come from septic childbirth or miscarriage do not always end with the immediate occasion. They may be prolonged to later periods as chronic ailments, such as endometritis, pus tubes or pelvic abscess.

Micro-organisms, germs, fungi, bacteria, call them what you may, are everywhere. The are in the air and in the water; they blend with the dust; they cling to clothing, carpets, bedding, draperies, walls, furniture and domestic

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utensils. Thep colonize the skin and burrow in it. Fortunately not all of these myriad organisms are pathogenic. Only a comparative few are so.

But how do the infectious ones come in contact with and invade the woman in her puerperium? Here we touch practical ground of the utmost importance. The skin and clothing of the woman herself hold them. So long as her skin and membranes are unbroken they are not absorbed; they find no ingress. But when lesions occur, when the protecting tunics are rent, invasion and infection may at once take place.

Quite too frequently the hands and clothing of the accoucheur are at fault. It is no extravagance to say that the hands of the doctor are never, except when sterilized, free from pathogenic germs, and it cannot be doubted that great numbers of women in all the centuries have fallen victims to this hand infection, both through doctors and midwives. How well, too, is it known that doctors may carry to their patients the poison of a cadaver of a zymotic disorder, or of ill-conditioned wounds and ulcers.

If the doctor himself has any suppurating or ulcerous ailment he is a threat to his patient.

The well known case of Dr. Rutter, of Philadelphia, furnishes proof of this. He had ninety-five puerperal fevers and eighteen deaths in four years. During the same period his neighbors had only a few cases and these were mild and non-fatal. The mystery was great. The doctor renovated and purified himself in every known way, but his ill-fortune continued. But all this time the doctor had a pustular ozena, and to this all the trouble was at last traced.

The hands and clothing of the nurse, also, may be and often are the sources of the trouble; so also are soiled sheets and blankets, old quilts and long used mattresses. An old mattress is often a very nidus of infection. And who has not seen a woman lying on or in contact with an old quilt that has gathered microbes for years, and perhaps for two or three generations? Who has not seen soiled towels and napkins, unclean rags and other

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household debris brought into use on such occasions? Fæces, so often extruded during labor, contain bacteria which may taint the fresh wounds.

There are probably other sources of infection to which reference has not been made, but it has been my purpose to call to view only such as are most common and of every day concern.

The practical conclusion to which I would lead is that thorough asepticism should be the rule in every case of labor in order that immunity and safety may be secured.

The environment of the patient should be entirely pure. There should be fresh air and clean bed and bedding. The woman's person should be prepared with soap, brush and hot sterilized water, and antiseptic washes. Her bowels should be freely moved with a cathartic and the rectum afterwards completely freed with an enema of warm sterilized water. Sterilized sheets should underlie and surround her. No old quilts, nor indeed quilts of any kind, nor blankets unless fresh from the laundry, nor soiled towels or clothes, should come in contact with her person.

During the progress of the case the external genitals should be bathed at intervals with hot sterilized water and antiseptic solution. If fæces escape, they should be promptly bathed away and the parts asepticized. Pads saturated with the antiseptic solution should be applied constantly towards the close. After the labor is ended careful antiseptic bathing should be practiced, and all rents and lacerations sutured and dressed with as much care as the surgeon would employ with similar lesions in other parts. If instruments are used they should be carefully sterilized. The same cleanliness and asepticism should be continued to the end of the lying-in period.

Now comes a specification on which special stress should be laid. The accoucheur must not himself be the intermedium of septicity. That he be not in fault he must exercise great care and pains. He must prepare himself, and especially his hands, as if for surgical work, in accordance with the strictest technique of antisepsis. His hands should

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be sterilized before examination. If that is done there can be no harm in such examinations as often as may be necessary, the outcry of late against them being merely notes of warning against infective hands. As his clothing harbors germs, he should cover himself with a sheet or robe.

The nurse should be equally careful and strict. From first to last, in bathing and dressing the parts involved, she should have sterilized hands and use sterilized water and dressings.

There may be considerable latitude of choice as to the antiseptic used. After a trial of many, my own preference is for bichloride, carbolic acid, creolin and carbonate of soda. The carbonate of soda, sal soda, which is in almost every house, is an excellent dertergent and a reliable germicide. I use a heaping teaspoonful in one pint of boiling water. Creolin in a two or four per cent solution is very useful and reliable. Hot vinegar, applied with pads to the vulva as soon as the placenta is expelled, is grateful to the patient, detergent and hemostatic. I think it also has some antiseptic quality.

I know it is sometimes difficult to carry out this program fully. In a modern hospital with its facilities and well instructed nurses, it is easy. In the homes of the rich and well informed it is not difficult. With people of moderate means it is a little more difficult because of the additional expense involved. But generally a few words of explanation will secure hearty co-operation. Amongst the very poor and the very ignorant, and especially amongst people who cling to old ways and traditions, the task is sometimes hard. Yet even here, the patient, painstaking and resourceful doctor will find a way to do the work fairly well.

But I must not further lengthen this paper. I will only add that my personal experience fully supports the views herein expressed. For a considerable period I have practiced in conformity with them, and with entire satisfaction as to results.

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DISCUSSION OF DR. JOHNSON'S PAPER.

DR. MULHERON, Detroit: I should like to ask Dr. Johnson a question, a question which has for sometime been disputed, which he did not touch upon. Of course we all cordially endorse everything the doctor has said in his paper, but he has not said anything in regard to the post partum douche, whether he regards that as an essential part of antiseptic midwifery. I should like to have his experience on that point.

DR. JOHNSON: I will say there are many points I would like to have touched on, but I have studied brevity. My rule is if the vagina is healthy I think it is not necessary. Wait until some time of necessity shows before its use.

DR. MULHERON: From my personal experience that is one point on which I take exception. I consider the use of the post partum douche is absolutely necessary. I think all our attempts at antiseptic midwifery are futile unless we keep the vagina thoroughly washed out. It matters not so much whether the douche is of an antiseptic character as the fact that there should be a constant flushing of the vagina. When we consider the position of the woman, lying on her back, a position favoring the retention of the clots and perhaps portions of the membranes, all liable to decomposition, the only wonder is we do not have more septic infection than we do. It is my practice to keep the vagina flushed daily, and in addition to that to favor drainage. I consider drainage as essential in midwifery practice as in the practice of surgery. In order to facilitate drainage I have the woman lie in the Sims' position most of the time. This position both favors drainage and prevents retroversion of the uterus. I also have her sit up on the ordinary vessel in order to evacuate her bladder. I have not permitted the use of a bed-pan in the lying-in chamber for the past ten years. I shall never allow

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a woman to use it if she is able to sit up at all. By this practice I keep up perfect drainage, and it is with a view of emphasizing this drainage that I insist upon the daily douche. It does not matter so much whether it is bichloride or carbolic acid, or whether it is sterilized water. What we want to do is to have the woman brought as nearly as possible into an imitation of a state of nature. She is the only animal that lies on her back after confinement. It is a position that favors septic decomposition, and it is our duty to prevent this and by no means wait until the discharges become foul. After the discharges become foul, septic infection has probably taken place.

DR. JOHNSON: I shall not at all object to the doctor's additional precaution, as I think it can do no harm, but I have gone on the understanding that if external antisepsis is practiced, then there can be no infection of the vaginal secretions, the things that the doctor mentions cannot take place, and if the secretions become foul it shows the germs have got through your line, that the external sepsis has not been effective.

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PUERPERAL CYSTITIS.

W. H. SAWYER, M. D.,
Hillsdale.

This most annoying and oft times serious complication of the puerperal state in the great majority of cases must be regarded as an infection, and like other septic conditions theoretically, at least, unnecessary. While traumatism of labor is an important causative factor, the irritation resulting from a solution of continuity and inflamed mucous surface, without an added infection, is usually mild and of short duration. When, however, by ready access or careless manipulation septic germs are planted upon a broken surface or an existing catarrhal cystitis, a suppurative inflammation sometimes of a malignant character may result.

A healthy bladder resists well any invading germ, but when impaired by disease or injury, or when the vitality of the vesical epithelium is reduced, it readily becomes the seat of purulent inflammation which by extention may involve adjacent structures with disastrous consequences.

Rodsing afte relaborate research concludes cystitis to be a germ disease, and classifies the bacteria found as non-pyogenic and pyogenic, the first producing decomposition of urine and inflammatory reaction, the second purulent inflammation.

The investigations of Reymond and others go far toward proving that pathogenic germs may gain access to the bladder without especial conveyance, and that many inflammations and irritations of this organ may be fairly attributed to this mode of infection. This investigator, Reymond, found in a number of cases of cystitis the same germs present as in a co-existing pelvic disease, and the cure of the pelvic lesion was fol-

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lowed by disappearance of the cystic inflammation. He also endeavors to show by experiments upon animals that germs introduced into the pelvis, outside of the bladder walls, produce cystitis, the same germ being present, though not found in the blood current of the pelvis.

In support of the theory of the easy accessibility of the bladder to bacteria, Wreden found in cystitis occuring with ulceration of the rectum the same microorganism present in both viscera.

Garonsky has demonstrated pathogenic bacteria in the otherwise normal urethra and reasons that these carried into the bladder may induce disease.

Barlow also states that the various forms of cystitis are all of microbian origin except that due to cantharides, and that inflammation is favored by retention, hyperæmia and traumatism, the three causes being, however, powerless each in itself.

That puerperal cystitis may occur by germ invasion without interference is pretty clearly demonstrated, but that in the great majority of cases it is the result of careless manipulation experience proves.

The symptoms of the disease in the puerpera do not differ in any essential from the usual catarrhal and suppurative inflammations except in occasional cases of exfoliation and gangrene and the tendency to extention; these graver conditions are indicated by profound prostration and higher temperature, and may terminate fatally.

To avoid as much as possible traumatism to the bladder and urethra in labor, and retention following, is of prime importance. That manual interference is fraught with so many risks makes retention more than a trifling annoyance and induces a careful study of its causes and prevention. This much discussed subject is most rationally explained by Swartz who concedes but two causes for the condition, lack of intra-abdominal pressure and a swollen urethra. I would add to that an inability to control, a simple nervous phenomenon.

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Experience has shown that the necessity for interference is much lessened by prophylactic measures. A careful attention to diet and moderate exercise alternated by periods of rest in the recumbent position, frequent warm baths with the free injestion of cold water and regular action of the bowels reduce the tendency to congestion of the pelvic organs and increase muscular tonicity and reparative power. Besides and important, too, let the patient acquire the habit of empting the bladder while lying upon the back. It is many times difficult for non-puerperal patients to pass urine while supine until accustomed to the position.

Hirst says: "Skutsch found that among twenty-nine puerperæ who had been managed in this way only eight required the catheter after delivery; while more than half in whom this precaution was not exercised required catheterization."

The catheter should not be resorted to until other measures, such as placing the patient upon the bed pan filled with hot water, the sound of dropping water, and the knee chest position with pressure over the bladder, have failed. While using these means the danger of over distention must not be lost sight of, and if the urine is not passed within twelve to sixteen hours following labor catheterization should be done, but with the most rigid antiseptic precautions and careful manipulation. A soft instrument, new and rendered antiseptic by boiling, only should be used, as the danger of a hard, unyielding tube injuring the swollen mucous surface *and making* infection easy is great. Before using the instrument the parts should be made aseptic by soap and boiled water, and afterwards by some antiseptic wash. The vaginal opening should then be closed by antiseptic gauze, and having the hand thoroughly cleansed and fully exposing the parts, the catheter, annointed with carbolized vasaline, may be passed with the minimum risk to the patient.

Knowing that this care is not generally exercised by practitioners, but is often looked upon as troublesome and unnecessary, I want to emphasize the fact *that use makes all things easy*, and the sooner we accustom ourselves to care in

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carrying out the general principles of asepsis as forced upon us by results the better for all concerned.

Winckel reports vesical inflammation in the Dresden House for Child-bearing Women as a rare condition, and attributes the freedom from the lesion to the aseptic care taken.

And Skene says: "I fully endorse the teachings of this great authority. I have seen so much bladder trouble brought on by the careless use of foul catheters that I have come to look upon clumsy operators and unclean instruments as the most common causes of cystitis."

Hirst speaks in the same emphatic manner: "That it is due in the vast majority of cases to a careless, clumsy and ignorant use of the catheter."

The treatment of cystitis following labor does not differ from the treatment of the same inflammation occuring under other circumstances. While a great number of remedies given in various ways have been suggested, the indications to be met are asepsis, drainage and rest to the bladder, with a bland and antiseptic urine flow.

By washing out the bladder once in six to eight hours with a nonirritating antiseptic solution, good drainage and relative asepsis may be maintained. For this purpose a solution of boracic acid, peroxide of hydrogen, or bichloride of mercury, one to thirty thousand, may be used.

One who has had to do with a nervous habit suffering from this trouble must have been driven to his wits end to find some means to give rest and relief from pain and tenesmus.

Hot applications to lower part of abdomen and perineum, a belladonna and opium suppository placed in the rectum, and potassium bromide internally, will be all that is required in many cases. When the urethra is involved much comfort is given by instilling with a common dropper a four per cent. solution of cocaine, resorting to morphine only when forced to, the same aseptic care to be taken in every office.

Salol or boracic acid with supportive treatment when demanded and an exclusive milk diet and free use of water are indicated.

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UTERINE STENOSIS.

JEANNE C. SOLIS,
Ann Arbor.

Uterine stenosis is a narrowing or constriction of the cervical canal. This constriction may be located at the internal or external os, or again along the whole length of the canal.

As to etiology we have two classes, the congenital and the acquired. The existence of the congenital variety, however, is disputed by some authorities, the claim being made that the condition is rather due to a "persistence of the normal natal type from improper hygienic conditions and management at puberty." The acquired form is secondary to lacerations, excessive cauterizations, and to anything which destroys or induces contraction of the mucous lining of the canal.

The symptoms of uterine stenosis are dysmenorrhœa and irregular flowing. The pain is located in the lumbar, iliac and sacral regions and consists of colicky paroxyms.

This dysmenorrhœa in the congenital variety has been present from the first appearance of menstruation varying only in degree from month to month; in the acquired form the history of the dysmenorrhœa is dated from some stated time and as following a period when it was absent.

As remote symptoms of stenosis we have metritis and sterility. The diagnosis is easily made. First we have a history of painful menstrual periods, the pain coming on in colicky paroxyms as before said and not being amenable to medicinal nor general measures of relief. This pain is further attended by an irregular intermittent discharge of the menstrual fluid. This history makes it proper to propose and

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to make a local examination, for without such examination and the necessary treatment no relief can be promised. On examination in the congenital variety we find a conical shaped cervix with a pin-point opening, or an enlarged cervix with gaping eroded lips and small body development. The appearance of the acquired form differs according to the cause. In all forms the positive diagnosis is made by the use of the uterine sound. On trying to introduce this an obstruction to its passage is met with at some point along the canal. Care must be taken to make sure the obstruction is not due to a fold of mucous membrane or to a temporary misplacement of the uterus either from the patient's position or from the manner in which the speculum has been introduced.

The stenosis may vary in degree, in some cases allowing the ordinary uterine sound to pass, though with the production of pain described by the patient as similar to that suffered at the menstrual periods, and in others not letting the smallest sized sound through.

The prognosis in uterine stenosis as to cure until recently has been unfavorable. The various methods of treatment procure alleviation only as a rule, or are too severe to be readily submitted to by the patient. Since the adoption of electricity, however, in the management of these cases, induced by the success of this method in the reduction of urethral strictures, a much more favorable prognosis is possible. With a proper strength of current acting a sufficient length of time a destruction of tissue in the cervical canal can be produced which will cure the stenosis providing no cicatrization is set up by rough manœuvres.

The various methods which are employed in the treatment of uterine stenosis are dilatation, section of the external orifice, amputation of the cervix, and electrolysis.

Dilatation is practiced after two methods—the slow and the rapid—each of which has its followers. Slow dilatation is accomplished by means of tents, the rapid with graduated or expanding bougies. The disadvantages of this method are the necessity of an anæsthetic if the operation is performed thoroughly, confinement to bed several days, the possibility

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of setting up a pelvic peritonitis, the necessity of various repetitions of the operation.

Section of the external orifice has been fatal at times, and as disadvantages of this method we note the necessity of an anæsthetic, the production of hemorrhage, confinement to bed for at least three days, and the necessity of wearing some instrument, as a glass peg or a pessary with an elastic stem, for several days. This incision, too, cicatrizes and the original deformity is reproduced or the parts gape, producing a cervical catarrh.

The disadvantages of amputation of the cervix are apparent.

The most recent and most successful method of treatment is that by electricity. The advantages of this method are its harmlessness, absence of pain, and efficacy. The resolutive power of the continuous current is made use of here. This power probably belongs to both the positive and negative poles; but, since it is impossible to avoid cauterization operating in the cervical canal, we choose the negative pole as the *active* electrode, because its eschar, like that of an alkaline caustic, is soft and non-contractile.

The necessary apparatus consists of a continuous current course, a rheostat, conducting cords, a set of four olive-tipped intra uterine electrodes having somewhat flexible insulated handles, and one broad electrode. The electric apparatus being in order the operatory method is as follows: The patient in position on the table and the speculum introduced the vagina is cleansed with an antiseptic solution. Then the direction of the canal and the location of the stricture are determined by means of the uterine sound. Next the broad electrode, well covered and moistened, attached to the *positive* pole, is placed under the patient's hands, from which all rings have been removed, and the smallest of the olive-tipped electrodes is introduced into the cervical canal to the point of stricture. Then the current is gradually turned on and increased in the same manner, while gentle pressure is exerted on the intra uterine electrode until it slips through the stricture. Now it is drawn quickly back

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and forth through the constricted part until it passes easily. The strength of the current varies from ten to twenty milliamperes, and the time consumed in the operation is about ten minutes. Some operators pass a second and even a third sized electrode at one sitting, increasing thus the length of the operation; but from experience it seems best to use only one size at a time. The operation can be repeated in three days with the second size continuing thus until all have been passed easily. As a rule the patient is only slightly disturbed, being able in five minutes after leaving the table to walk home and to pursue her usual occupations, complaining of only a slight abdominal soreness and discomfort. A hot douche and a short rest, if possible, are prescribed after each treatment.

The number of treatments to complete a cure vary. In some cases a single treatment is all that is necessary, while in others for several months a single treatment a few days before the menstrual period is required. Cases complicated with a secondary metritis require in addition to the negative electrolysis a positive intra-uterine after treatment to reduce the inflammation and to restore normal nutrition to the part.

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DISCUSSION OF DR. SOLIS' PAPER.

DR. METCALF, Detroit: Because this subject has received so little attention in medical circles I would like to add my testimony in treating uterine stenosis in this manner. It has been my practice for the last six years, and I believe there is no treatment equal to it. I believe Dr. Bright, of Washington, brought the subject to the attention of the profession first some seven or eight years ago. I have found in six years only two or three cases that did not yield to this method of treatment. I don't think that can be said with the experience of any other form of treatment. It is a very rational treatment to any one who has studied the effect of the negative current, who has known its power of softening the tissues, and of allowing, as the writer has said, the electrode to slip readily through after a few minutes application where the resistance was so great before the current was turned on. I think the practice should be more generally adopted than it is.

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THE CURE OF INCURABLES.

J. H. KELLOGG, M. D.,
Battle Creek.

The purpose of this paper is to call attention briefly to the methods by which a very large proportion of cases which are to a great extent abandoned as intractable, and which are incurable under ordinary conditions, may be cured by the aid of special therapeutic measures and such changes of regimen and environment as will remove exciting and predisposing causes and establish favorable conditions.

I wish at the outset to disclaim any pretention of extraordinary skill or wisdom in dealing with this or any other class of cases, my purpose being simply to show what can be accomplished in a case which is incurable under ordinary conditions by focusing, as it were, upon the case at one time and in one place the various resources offered by scientific medicine. I have often found cases which have been for long years abandoned as hopelessly ill to yield readily to a judicious combination of measures, but which had never been applied in connection. The cure of chronic cases must be obtained on the same principle as that on which a heavy building is raised. A single jackscrew, although powerful and efficient, can accomplish nothing, while a hundred worked together easily accomplish what is apparently impossible.

A combination of physiological measures and rational remedies often result in the cure of cases which from the standpoint of a practioner familiar only with the application of ordinary remedial measures would be justly regarded as absolutely incurable.

Among the disorders to which the term incurable is very commonly applied may be enumerated: Chronic rheumatism,

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locomotor ataxia, dilatation of the stomach, infectious jaundice, diabetes, Bright's disease and exophthalmic goitre; and cases are not infrequently met in which patients suffering from asthma, hysteria, chlorosis, progressive emaciation, dyspepsia in its various forms, obesity, epilepsy, tuberculous disease of the lungs, insomnia, melancholia, migraine, tic douleureux, functional pelvic disorders of women and the protean disorders included under the general term uric acid diathesis have so stubbornly resisted all measures of treatment which have been applied that they have been pronounced incurable by one practitioner after another, and the case has come to be regarded as practically hopeless.

It is not the purpose of this paper to enter upon an exhaustive consideration of either the pathology or the therapeutics of the various maladies named, but to present a brief outline of the general and particular methods by which stubborn and so-called hopeless cases belonging to the various classes named have been successfully treated, together with a few briefly stated illustrative cases.

The general principles which the writer has followed for something more than twenty years in the treatment of chronic ailments may be stated as follows:

(1) *The chronic invalid is, as a rule, sick as the result of some fault of constitution, of environment, or of habits of life. In undertaking a course of treatment for his relief, first attention must be given to the removal, so far as possible, of every immediate or remote cause of his malady.*

(2) *The cure of chronic maladies is to be accomplished not by any process of antidoting, nor by what might be termed therapeutic juggling in the use of tonics, stimulants, alteratives, sedatives, cholagogues, laxatives, diuretics, etc., nor by medical magic of any sort; but by control of the regimen, systematic training, education, and the employment of such physiological agencies as hydrotherapy, electrotherapy, active and passive exercise skillfully and systematically employed, change of environment or climate in some cases, and the adoption of every measure calculated to establish normal conditions for every bodily function, not neglecting such attention*

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to the patient's mental and moral states as may be required.

(3) *The chronic invalid is sick, not in one part only, but universally. What he needs is not simply an improvement in the condition of his stomach, his liver, nerves, or of any other single organ, no matter how conspicuous the symptoms may be in this particular part, but a general tissue renovation and reconstruction. He needs to be born again physically, so to speak, and no permanent improvement can be secured by any process which stops short of the complete rebuilding of the entire body.*

(4) *Those means are most effective in the treatment of chronic disorders which most profoundly and favorably effect tissue change and repair. No remedies are of real or permanent value except those which secure an actual improvemeut in bodily structure. The long list of tonics, stimulants, rejuvenants of various sorts, the administration of which is followed by an immediate quickening of vital activity, and a feeling of comfort and well being are, without exception, delusive in their effects, and unless employed merely as temporary expedients are highly injurious and in no way conducive to actual recovery, as they only hide the real condition of the patient, giving him the impression that he is better, whereas he is really no better, but rather worse.*

Tonics or stimulants do not produce an actual increase of strength or vigor, but only render it possible to get out of the exhausted nerve centers or other organs a little more work without giving them an increased ability for work, thus still further lessening the body's store of energy and so making the patient really worse instead of better. I make use of tonics and stimulants, as intimated, but only as temporary expedients. In the rational treatment of chronic disorders they must play but a very insignificant role. What the chronic invalid wants is not simply to be made to *feel* better, but to be made *actually* better.

The wonderful developments in bacteriology and physiological chemistry within the last few years, and the important facts to which Bouchard and Glenard have called attention in showing the intimate relation existing between various

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forms of visceral displacement and many nervous and other chronic disorders, and the widespread mischief resulting from the formation of various poisons within the alimentary canal and their distribution throughout the body, as seen in functional disturbances of various sorts, and even tissue degenerations, giving rise to various forms of paralysis and organic disease of the kidneys, liver and other organs, have thrown a great flood of light upon the pathogeny of a great number of disorders, and have opened up new paths in therapeutics which lead to success in cases which had previously necessarily proved utterly refractory to therapeutic measures which we now know were necessarily futile, because misdirected.

For more than twenty years I have devoted myself almost exclusively to the treatment of chronic ailments, and a great majority of my patients have been persons who have been long ill and who had long resisted the use of medicinal and other ordinary medical means. With few exceptions my patients have been sent to me by physicians who themselves recognized the futility of methods of treatment accessible to their patients at home and the necessity of more thoroughgoing measures. Not infrequently physicians write me, as did one of considerable eminence as a specialist in nervous disorders, who, in his letter introducing his patient remarked "I have had this patient under treatment for nine years. I have been giving him all the tonics known to the materia medica, but he is no better; he gets steadily worse, and I have made up my mind that he requires a course of physiological stimulation." This is the situation of the average chronic invalid; he requires, not artificial, but physiological stimulation. This sort of stimulation comes from the relief of overburdened organs and the facilitation of all the vital processes by careful regulation of habits and the application of such therapeutic measures as will aid eliminative, recuperative and other vital processes. How this may be accomplished in the various classes of chronic cases it is the purpose of this paper to briefly outline and illustrate.

I have accordingly selected a few typical classes of cases which are generally regarded as either incurable or so intract-

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able that little or no encouragement can be properly given the patient, and will proceed to outline briefly the special therapeutic measures and regimen which I find successful in dealing with each particular class of cases.

BRIGHT'S DISEASE.

There is no disease in which more satisfactory results can be obtained than in the treatment of this disease, formerly regarded as so hopeless. Of course it is not to be expected that a patient suffering from Bright's disease will be made absolutely sound, that is, that that portion of the kidney structure which has been actually destroyed may be reproduced. Nevertheless, every morbid symptom may be made to disappear in quite a large proportion of cases, and the patient may be established in a routine of diet and regimen by the careful following of which he may enjoy excellent health and even long life.

In the treatment of this disease, it must be remembered that in at least a large proportion of chronic cases the disorder is the result of the long continued irritation of the kidneys by toxic substances absorbed from the alimentary canal, having been received with the food or developed in the stomach and intestines by abnormal fermentations.

The relation of stomach and intestinal fermentations and decompositions through the action of microbes to disorders of the kidney and to so-called uric acid poisoning has been very clearly pointed out by Bouchard in his wonderful work "The Auto-Intoxications", as well as by his pupil, Rogers, who has carried still further the interesting researches begun by his master. The kidneys are in a crippled condition, hence able to do less work than healthy kidneys; and they are in a condition very susceptible to irritation, hence especially liable to injury from irritants of any sort, whether received from without or developed within the body, or from disturbances of the circulation resulting from exposure to cold. Keeping these facts in mind, the general plan of treatment, pursued with this disease, is as follows:

1. Absolute rest in cases of acute Bright's disease and during acute exacerbations in chronic cases. Exhaustion from

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muscular effort must at all times be carefully avoided on account of the danger of overwork to the kidneys in the elimination of fatigue poisons.

2. An aseptic dietary, which means the absolute disuse of flesh foods, especially fish, oysters and shell fish of all kinds which readily undergo decomposition in the alimentary canal, producing toxins and ptomaines which require elimination through the kidneys, and hence may increase their work to an enormous degree.

Bouchard called attention to the fact that the fæcal matters of persons eating meat have a toxicity several times greater than that of a person living upon a non-flesh diet. In experiments which I made a few years ago I found that a flesh diet increased the toxicity of the urine four fold. In this case the amount of urea in the urine was also increased four fold, or from 24 grains to 96 grains per diem.

In a case investigated by Bouchard in which there was clear evidence of intestinal infection, the urine was found to contain fifty times the normal amount of toxic substances. Kidneys exposed to such an influence as this must necessarily be irritated and imperiled to a high degree. In extreme cases it is necessary to confine the patient to the simplest and least toxic foods. A milk diet is sometimes advantageous. Gilbert and Dominici showed that an exclusive milk dietary in two days reduced the number of microbes from 67,000 germs per milligram to 1,350. I have found, however, that in many cases ordinary milk does not agree well with patients, especially in cases of dilatation of the stomach. The reason of this has been shown by Glenard to be that the dilated stomach is likely to retain fragments of hardened casein until decomposition is set up. In such cases I have found kumyzoon, an improved kumyss, of great advantage. Kumyzoon is made by the addition of a pure culture of year to sterilized milk without the addition of sugar. The milk is then charged with CO_2 and the resulting fermentation is practically non-alcoholic.

Dr. Backer, in a remarkable work entitled "Les Ferments Therapeutique" (The Therapeutic Ferments), has shown that yeast cells possess the property of phagocytosis, which in part

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explains the special value of kumyzoon as a means of securing intestinal asepsis.

Fruits, nuts and farinaceous preparations can ordinarily be employed with excellent advantage in these cases, though during an acute attack I find a diet exclusively confined to milk, buttermilk or kumyzoon most serviceable. Mustard, pepper and condiments of all kinds must be avoided, as also tobacco, alcoholic drinks and tea and coffee. Cheese and other decomposing food must of course be excluded from an aseptic dietary.

3. The patient must dress in woolens at all seasons of the year, and should carefully avoid chilling the surface. His habits must be temperate in every respect. Sexual excesses are in the highest degree damaging, and every form of physical exhaustion must be avoided as likely to precipitate at any moment an acute exacerbation of the disease.

4. Drugs are of little or no value in these cases. Diuretics are in the highest degree detrimental, as well as mineral waters of all sorts, because of the crippled condition of the kidneys which need rest and relief rather than additional burdens. The patient may drink from two to four pints of distilled water daily. Very hot and very cold baths should be avoided. The patient takes tepid baths two or three times a week, and each day is subjected to vigorous friction of the skin either with a dry flesh brush or with moist salt. Care must be taken in the administration of massage, especially at the beginning of the course of treatment, as otherwise an excessive amount of muscle poisons will be suddenly thrown into the circulation.

Centripetal friction and superficial kneading or fulling are the most suitable measures. Swedish movements, breathing exercises, very light calesthenics, and light apparatus work in the gymnasium are indicated. It is important, however, that the exercise should be based upon a careful determination of the total strength of each group of muscles by the dynamometer (see paper by the author entitled "A New Dynamometer", etc.), together with a careful determination of the urotoxic coefficient and the coefficient of nitrogen oxidation.

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The latter determination must be carefully made in each case at the beginning of treatment and at frequent intervals while the patient is under observation.

The urotoxic coefficient is determined by injecting the urine of the patient into a vein of a rabbit's ear until death is produced, then comparing the amount of urine required to kill the rabbit, the weight of the rabbit, and the weight of the patient with the total quantity of urine produced in twenty-four hours by the patient. The normal coefficient is .46. A low coefficient indicates that the kidneys are not able to do the normal amount of work in the elimination of poisons, and shows at once the necessity for the strictest adherence to asepsis in diet and careful attention to all the precautionary measures whereby the development of poisons in the alimentary canal may be limited, while proper methods are used to increase the efficiency of the kidneys without overstimulating them. This is best done by means of the warm enema with the retention of as large a quantity of water as possible, by copious water drinking, the use of the wet girdle or umschlag, massage of the legs, fomentations over the region of the kidneys, and abdominal massage.

CASE 1. A lady aged sixty-two years. Examination showed diminished quantity of urea and enormous amount of albumin. When heated in a test tube with acid, the urine became almost solid. This patient had suffered from chronic malarial poisoning for the relief of which her physician had administered large doses of quinine, daily, for some weeks. It was found that the administration of quinine always produced a great increase in the proportion of albumin in the urine. The malarial paroxysms which still continued in full force we finally subdued by means of hydrotherapeutic applications, and after a few weeks the albumin had entirely disappeared. The patient returned home after five or six months enjoying excellent health. The extreme anæmia had entirely disappeared, together with all the malarial symptoms. The patient had gained in flesh, had plenty of color in cheeks and lips, and has remained in good health ever since, now some eight years.

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CASE 2. A young man, aged 18, suffering from acute Bright's disease with general dropsy. His friends thought the attack to be due to an overdose of turpentine administered by a physician while the young man was suffering from an attack of typhoid fever. The urine showed an enormous quantity of albumin. At the end of three months the albumin had entirely disappeared and the young man has remained in good health since, although some fourteen years have elapsed.

CASE 3. A young man aged 14 years, fireman at the Sanitarium, suffered an acute attack of Bright's disease the cause of which was not apparent. There was general dropsy to an extreme degree and almost complete loss of vision from retinitis albuminurica. After three or four months' treatment in accordance with the principles above outlined the albumin had entirely disappeared and the patient has now remained well for thirteen years.

CASE 4. A young man aged 18 years, a resident of Ontario, had suffered from Bright's disease for something more than two years. The amount of albumin present in the urine was enormous. The patient was very weak, emaciated and dropsical. At the end of two months he had made excellent improvement, was able to walk without inconvenience two or three miles, and considered himself almost entirely well. He went on a two days' visit to Chicago, tramped about the city all day and ate several "square meals" as he called them. On returning after a day or two he complained that he was not quite so well. He was confined to his bed in forty-eight hours and in a week he was dead in spite of all that could be done for him, evidently the result of dietetic and other foolish digressions while in Chicago.

CASE 5. Mr. J. H. W., aged 70, for many years was a smoker and also addicted to the use of alcoholic liquors; had suffered from Bright's disease for twelve years. Examination of the urine showed four and one-half per cent. of albumin. The albumin was gradually reduced to one and one-half per cent., and finally disappeared entirely at the end of two weeks'

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treatment. Both alcohol and tobacco were, of course, interdicted.

CASE 6. Mr. P., of Ohio, aged 17, now under treatment, had suffered from Bright's disease for two years. Examination of the urine showed twenty-five per cent. of albumin. In less than a month the albumin has been reduced one and one-half per cent., and is still diminishing.

DIABETES.

Although this malady is quite too often pronounced incurable or susceptible only of a very moderate degree of control, a careful study and management of a large number of cases show a cure to be possible in fifty or sixty per cent. of cases in which sugar in considerable amount is found in the urine. In diabetes there may be either an over production of sugar through excessive activity of the liver, or a lessened oxidation of this element, the system failing to burn up the sugar circulating in the blood. There are three things to be accomplished:

(1) Diminish the supply of sugar.
(2) Diminish its production in the body.
(3) Increase the oxidation of sugar.

Before beginning the treatment in the cases of diabetes the exact amount of sugar per day is determined, together with the coefficient of nitrogen oxidation and the urotoxic coefficient.

The simple form of diabetes is readily controlled by restriction of the dietary and general increase of oxidation processes by means of vigorous exercise, massage, Sweedish movements, cool shower baths followed by brisk rubbing, the Scotch douche, the inhalation of oxygen, and the administration of oxygen by enema.

In the severe forms of diabetes great care must be taken to determine whether there is increased or diminished oxidation of proteids. The coefficient of nitrogen oxidation is determined by the following method. The total nitrogen of the urine is ascertained by quantitative estimation. By another determination the amount of uric acid and xanthine bases rep-

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resenting the unoxidized nitrogen is ascertained. Dividing the unoxidized nitrogen, I subtract this from 100, and it gives the percentage of oxidized nitrogen or the coefficient of nitrogen oxidation. By subtraction of the unoxidized nitrogen from the total nitrogen we get the total nitrogen oxidation. The comparison of this amount with the normal shows at once whether there is an increased or diminished oxidation of proteids, and to what extent.

Increased nitrogen oxidation indicates an excessive amount of organic waste, a condition in which cachexia and diabetic coma are likely to develop suddenly, on account of the overtaxed condition of the kidneys. The urine often contains diacetic acid which shows the characteristic red color with chloride of iron. In this form of the disease the patient must rest in bed. Even massage and other passive movements are avoided, with the exception of careful joint movements and centripetal friction. Warm baths, tepid sponging and tonic applications of electricity are administered. The diet consists chiefly of kumyzoon or buttermilk and well cooked preparations from nuts.

In diabetes there is generally some marked disturbance of digestion occuring at intervals with an increase of sugar in the urine. Such cases require inhalation of oxygen, oxygen enemas, cool spray or shower with friction, massage, static electricity, breathing exercise and manual Sweedish movements. All violent exercise such as bicycle riding and vigorous gymnastic exercises must be avoided.

An excessive meat diet is objectionable in all forms of diabetes and especially in grave cases. In cases of diminished oxidation of proteids there is special danger from the fact that the system is not able to relieve itself of the normal tissue poisons, so that the addition of toxic elements (always present in the flesh of dead animals) may be sufficient to precipitate a crisis in an attack of coma. Dujardin-Beaumetz and other eminent French physicians long ago pointed out the fact that exclusive meat diet is dangerous in diabetes in consequence of the tendency to coma which results from

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flooding the system with ptomaines and leucomaines which the flesh of dead animals always contains

By careful management I have frequently seen the sugar reduced from eight or ten ounces in twenty-four hours to only a few grams within a few days. In cases in which the amount of sugar is not more than one hundred to two hundred grams in twenty-four hours the sugar may confidently be expected to disappear entirely in two or three months if the patient's co-operation is thoroughly secured. Restriction to a diet absolutely free from starch is not required as the system requires a certain amount of carbohydrates. The gluten of wheat, either pure or with the greater portion of the starch removed, is an invaluable food in this disease. But unfortunately the gluten flours which are sold in great quantities, and most of the gluten preparations offered in this country, are fraudulent in character, containing practically no less starch than is found in ordinary wheat flour. The various preparations of nuts and acid fruits are useful in these cases. I am making some extended experiments with Soja beans as a diabetic food. This bean is a native of China and Japan, contains only eleven per cent. of starch and an equal amount of sugar, with thirty-five per cent. of proteid matter in the form of true albuminoids, and one per cent. of a very digestible fat.

The following cases illustrate what can be accomplished in this disease:

CASE 1. Mr. A., age 35 years, first came under my observation some forty years ago. At that time he was passing nearly eight ounces of sugar daily, was considerably emaciated and very weak, wholly incapacitated for business. By careful application of treatment in accordance with the principles above outlined the sugar almost entirely disappeared and the patient has since remained in good health by following a careful regimen. He is practically well, being able to attend to his business regularly.

CASE 2. Mrs. C., of Ohio, age 54 years. On examination the urine was found to contain over two hundred grains of sugar daily. At the end of four weeks the sugar had entirely

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disappeared and the patient returned home in excellent health.

Numerous similar cases might be cited.

EXOPHTHALMIC GOITRE.

This disease, formerly so obscure, is now pretty generally conceded to be a disease of the sympathetic nervous system involving the thyroid gland, the disturbance of the heart and the undue prominence of the eyes being simply especially conspicuous features of a malady in which there is a disturbance of the whole body. In the discussion of a paper by the writer Professor Thompson, one of the leading physicians of New York City, recently expressed at the meeting of the Academy of Medicine his belief that this malady chiefly depends upon the production within the alimentary canal of excessive quantities of ptomaines and toxins. He found that a milk diet persevered in for some months is almost a specific for this disease. He believed its efficiency to be due to the suppression of vicious fermentation in the stomach and intestines. The writer's experience agrees fully with this view of the disease, which has almost uniformly yielded to the application of rational measures of treatment.

CASE 1. One of the first cases which I find in my records is that of a young woman aged 19 years, a resident of Michigan, in whom I observed all the characteristic features of this disease, the first symptoms having appeared the year previous. Strict attention to intestinal asepsis with the application of galvanism to the cervical and abdominal sympathetic, hot applications to the spine, tepid baths and massage, effected a cure in the course of three or four months' treatment. The patient remained well for a number of years, when a relapse occurred, from which, however, she recovered quickly under renewal of the same treatment, and with this exception the patient has remained well for the last dozen years.

CASE 2. Miss R., aged 22 years, exhibited all the symptoms of exophthalmic goitre in an advanced state. The first symptoms of the disease had appeared three years before. The patient had tried climatic change and all the usual remedies, had had the advantage of the best medical advice

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to be secured in Chicago, but steadily grew worse. Absolute rest in bed, an aseptic dietary, and the employment of the other measures suggested in connection with the report of the preceding case, resulted in a perfect cure within six months. The patient has since married and has two children. She has remained in perfect health.

INFECTIOUS JAUNDICE.

This disease is frequently mistaken for gall stones, a malady which generally requires surgical treatment. The researches of Dujardin-Beaumetz and others have shown this malady to be due to infection of the liver, the result of the extension of catarrhal inflammation of the stomach, or chronic gastritis, first to the duodenum and then to the biliary passages. The measures of treatment which I have found successful are:

A strictly aseptic diet and careful suppression of all irritating articles of food, especially condiments, coarse vegetable products, cheese, butter, and in severe cases even fermented breads.

In cases of dilatation of the stomach, a condition very common in this disease, lavage of the stomach must be administered from one to three times a week; fomentations over the stomach two or three times daily, the wet girdle worn constantly and changed every four hours, worn over the bowels, the Turkish or electric light bath for elimination, the latter being found especially valuable as a means of relieving intolerable itching, the wet sheet pack, the hot enema twice a day, and copious water drinking, are the measures found most effectial in this disease.

CASE 1. Mrs——, of Boston, Mass., aged 45 years. Jaundice had been present for more than two years. Successive attacks had occurred with so great frequency that the skin had at no time presented its natural appearance since the first attack. The urine contained bile in great quantity. Fæcal matters were clay colored. After four months application of the measures outlined this patient was restored to excellent health and has remained well for the last four years.

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CASE 2. Mr. L., of Kenosha, came under my care for treatment eighteen years ago, having at that time been intensely jaundiced for three years At the end of three months he returned to his home restored to sound health and his skin the natural color. He has remained in good health ever since.

CASE 3. Mr. B., a senator from a western state, 53 years of age, was not only intensely jaundiced, but greatly emaciated. His case had been considered one of cancer of the stomach involving the liver. By the aid of a few months' treatment, however, this patient made an excellent recovery. He gained, while under treatment, forty-six pounds in weight; returning home well, as he still remains.

LOCOMOTOR ATAXY.

Notwithstanding the various specifics which have been offered for this disease, it is still generally regarded as an incurable malady. Nevertheless, I have seen cases entirely recover under appropriate treatment. I find rational measures of treatment so efficient that as a rule I have no hesitation in encouraging a patient that he may expect a very great degree of improvement, even though he may not get entirely well.

CASE 1. Mr. A., of Rhode Island, aged 57 years. The first symptoms of locomotor ataxia appeared six years previously, beginning at the inside of the left hand, traveling up the arm and down the trunk. Shooting pains, crises, ataxic symptoms, girdling sensation, impairment of sight, gradually appeared. At the time the patient was examined the knee jerk was absent. The patient could not stand with his eyes shut, could not walk without a cane, had difficulty in passing urine, both primary and secondary pupilary reflexes were absent, the plantar reflex exaggerated, and also sensibility to heat and cold. Patient remained in the Sanitarium under treatment at the hands of my colleague, Dr. Riley, for three months. Improvement began almost at once. When he left he had gained ten pounds in weight, there was a decided improvement in vision, he had discarded his cane, had little

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difficulty in passing urine, and was in every respect greatly improved.

CASE 2. Mr. A., aged 46 years, entered the Sanitarium for treatment in 1893. First noticed ataxic symptoms the year previous; had shooting pains, crises, girdle sensation, incontinence of urine; impairment of vision, restriction of the visual field and other characteristic symptoms were present at the time of examination. The patella and skin reflexes were absent. The patient found great difficulty in walking even with the aid of a cane. The patient was under treatment ten weeks, during which time he made very great improvement. The pains, which had been exceedingly troublesome, had practically disappeared, the patient having had but one severe attack after beginning treatment. He is able to walk two miles without weariness, sleeps soundly, digestion improved, and he has made a gain of twelve pounds in weight. The patient continued to improve on returning home. On placing himself under treatment again the following summer still further improvement was made.

CASE 3. Mr. M., of Illinois, aged 43 years. In this case, as in the preceding, the patient gave a history of syphilis some years previously; knee jerk was absent; the patient suffered greatly from ataxic pains and from other characteristic symptoms. The patient walked in the dark with very great difficulty and could not stand with the eyes closed. At the end of six months this patient returned to his home in good health. When seen twelve years later his ataxic symptoms had not returned, but the knee jerk was still absent. Many other similar cases might be mentioned.

In the treatment of this class of cases it must be constantly kept in mind that the degenerative process which lies at the foundation of the disease may be the result of the morbid influence of a toxin upon the nutritive processes, hence the patient is subjected to moderate elimination. The electric light bath is found especially useful in these cases, also the galvanic bath, local and central application of galvanism, static electricity, sinusoidal electrical current, massage, manual and mechanical Swedish movements, revulsive applications

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to the spine, suspension, fomentations over the region of the abdomen, the wet girdle and other hydrotherapeutic measures, together with especial care in the regulation of the diet with reference to asepsis and the improvement of the digestion. It is the writer's belief that if all cases could be placed under the proper treatment and regimen at an early period in the disease the majority of patients might be cured.

CHRONIC RHEUMATISM.

The observation of a very large number of cases of this disease has led me to agree fully with Prof. Bouchard in the belief that this disease owes its origin to morbid intestinal fermentations resulting in the production of ptomaines, through the absorption of which the nutritive processes are perverted. Bouchard found dilatation of the stomach in nearly every case of chronic rheumatism examined by him. I have not failed to find stomach dilatation in all cases of this disease which have come under my care within the last half dozen years since my attention was called to the relation of dilatation of the stomach to this disease.

The general plan of treatment followed is this: These patients being generally poorly nourished and often anæmic, a generous but aseptic diet is hence required. Careful attention is given to regulation of dietary to meet the conditions of the stomach as determined by a test meal and a careful chemical and bacteriological examination of the stomach fluid.

Associated with dilatation of the stomach prolapse of the abdominal viscera is frequently observed. These conditions are to be combated by abdominal massage. (For method of abdominal massage see "Art of Massage," by the author, Modern Medicine Pub. Co., Battle Creek, Mich.) General massage carefully directed to the joints and surrounding tissues is daily applied. When there is much pain or sensitiveness about the joints the massage must first be derivative in character. Later vigorous application to the joints themselves, combined with fomentations and heating compresses, and still later joint movements are employed; galvanism, the sinusoidal electrical current and the application of static elec-

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tricity are of especial service in relieving local pain and swelling. Chronic intestinal catarrh frequently accompanies rheumatic symptoms. This is generally relieved by an aseptic dietary, but sometimes requires in addition the daily hot enema either with or without gallic acid in proportion of a dram to a quart of water as a germicide.

Experiments made in Pasteur's laboratory some two or three years ago have shown that the membranous appearing mass of mucus discharged in these cases is often almost a pure culture of a specific germ.

Fomentations to the abdomen once or twice daily with the wet girdle or umschlag at night and such general tonic measures as the electric or galvanic bath are used. Short applications of the electric light bath and tonic baths are also employed. It is a mistake to resort to vigorous elimination in chronic rheumatism. I have frequently received patients who had experienced great damage by hot baths of various sorts at popular mineral spring establishments and like resorts. It is not an uncommon thing for patients suffering from this disease, and so thoroughly crippled as to be unable to help themselves about, to be so far restored that they can walk about with ease and engage in the ordinary duties of life, but of course it is not to be expected that in extreme cases the structural bone changes which have occurred will entirely disappear.

CASE 1. Mrs. H., entered the sanitarium in September, 1880, was almost completely disabled by rheumatism, which affected nearly all the large joints. She had suffered from the disease from eight to ten years. Acute exacerbations were very frequent. At the end of four months, the patient returned home relieved from pain, able to walk long distances without difficulty, and when seen last year she was still enjoying excellent health.

CASE 2. Mrs. B., of Missouri, aged 47 years. The patient was so completely disabled by rheumatism that she was confined to her bed. Both limbs were flexed, the joints being almost immovable. Her elbow was flexed, the large joints of both arms were also stiffened. The patient had been in this condition for several years. By persevering effort she recov-

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ered the use of her limbs sufficiently for walking, and was able to place her hands above her head. She scarcely considered herself longer an invalid, although there still remained evidence of the disease from which she had formerly suffered.

DYSPEPSIA.

Under this head is included a large variety of functional ailments affecting the stomach, which for centuries have been treated in a more or less routine manner, and unfortunately these maladies, to a large extent, are still thus treated. Some cases yield readily to ordinary remedial measures, while others are so refractory to all means that can be brought to bear upon them under the conditions of ordinary medical practice that they are pronounced incurable. We have succeeded in curing cases which had been regarded as malignant disease of the stomach, although of course the fact of recovery showed that malignant disease was not present.

In a careful study of the conditions of the stomach, as shown by examination of the fluid obtained after a test meal in nearly six thousand cases, I have been able to classify the functional disorders of the stomach, as regards the disturbance of the chemical processes of digestion, into twenty-six distinct classes, each of which presents special therapeutic indications. A careful chemical and bacteriological examination of the stomach fluid obtained after a test meal is the only means by which definite and exact indications can be obtained for the treatment of functional disorders of digestion. By the aid of this mode of investigating the disorders of digestion, a prescription for diet, treatment and regimen can be made with perhaps greater exactness than in any other class of disorders.

The facts obtained by such an examination and which are necessary for intelligent treatment of the disorders of digestion are:

(1) The quantity and quality of the gastric juice secreted by the stomach.

(2) The quantity and quality of the work done in the digestion of proteids.

(3) The activity of salivary digestion in the stomach.

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(4) The relative rate of absorption of the digested food from the stomach.

(5) The presence or absence of abnormal fermentations in the stomach, and the character of the ferments present.

The location and size of the stomach must be determined by physical examination.

I have not space in this paper to undertake an exact description of the technique of the methods employed for ascertaining these important facts named. It is perhaps sufficient to say that we now possess exact methods by which the data referred to can be determined so that the prescription of diet, dietetic and other measures in cases of indigestion need no longer be a matter of speculation or empiricism.

The quality of the gastric juice is determined by exact quantitative chemical estimation, as also the activity of the stomach in the digestion of proteids and starch. By these quantitative estimations a mathematical basis for exact coefficients of the work of the stomach is found.

It is possible also to determine with the utmost precision the amount of fluid present in the stomach at a given time, and to determine with accuracy the dimensions of the stomach. This method, which I have elaborated from a suggestion obtained from a French author, consists in introducing into the stomach of a patient while fasting, a small proportion of water acidulated with hydrochloric acid, or containing a small amount of chloride of soda, iodide of potash, or some other substance, the amount of which can be easily estimated. Then proceed as follows: After one or two minutes withdraw a portion of its contents with the stomach tube. Place this aside. Pour the water into the stomach until it is completely filled, taking careful note of the amount of water passed into the stomach. For this purpose I use two graduated bottles connected by a Y tube with the ordinary stomach tube, so that the amount of fluid passed into the stomach and removed from it can be readily measured. Then withdraw as much as possible of the stomach contents, placing it in the second glass. By a comparison of the acidity of the portion of the fluid first obtained from the stomach with that of the

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second portion, the quantity introduced and the quantity first removed, it is easy to determine the volume of the stomach and the amount of fluid in the stomach. The quantities involved and the formulæ to be employed are as follows:

Let b represent the amount of the fluid first removed from the stomach. Let q represent the amount of distilled water introduced into the stomach. Let a represent the acidity of the first quantity removed, and a' the acidity of the second quantity removed. Let x represent the amount of fluid in the stomach at the beginning of the experiment, and y the volume of the stomach. Then the following formulæ will give the results desired:

$\frac{a' q}{a-a'}+b=p$, the fluid remaining in the stomach at a given time.

$\frac{a' q}{a-a'}+q=y$, the capacity of the stomach.

In extensive studies upon dogs and human beings by means of experimental test meals, and especially in the study of salivary digestion, I have observed many facts of practical importance in the treatment of disorders of digestion and have been able to confirm the observations of Roberts, Mosso, Chittenden and others. A few of these facts which I find of the most practical use may be stated as follows:

(1) The activity of salivary digestion in the stomach depends first, (a) upon the thorough cooking of foods; (b) upon the thorough mastication of food substances; (c) upon the dryness of the food substances whereby the salivary secretion is stimulated; (d) upon the degree of acidity of the stomach contents and the rapidity with which the stomach contents become acid after the beginning of a meal. In hypopepsia the salivary coefficient is low, in hyperpepsia high.

(2) When proteid digestion in the stomach is deficient in quantity or quality it is not because of a deficiency of pepsin or other organic ferments, but because of the absence or deficiency of free hydrochloric acid; it is because of a deficiency of the formation of hydrochloric acid.

(3) In many cases in which there is no quantitative defect in proteid digestion there is a formation, in considerable

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quantity, of toxic proteid substances resembling the products of normal digestion chemically, but of no nutritive value.

(4) Free acids, with the exception of the weak acids of edible fruits, when taken into the stomach increase the functional disturbance in hyperpepsia and do not lessen the disorder in hypopepsia or apepsia. Oxalic acid is particularly injurious in this respect.

(5) Microbes are not present in the normal digestion of sterile food substances, and cannot be regarded as useful in the digestive process.

(6) Tea and coffee interfere with the digestion of both starches and proteids.

(7) Alcohol in all forms interferes with the digestion of proteids.

(8) Mustard, pepper, pepper sauce and other so-called condiments do not increase the activity of proteid digestion nor the secretion of normal gastric juice.

(9) An aseptic condition of the stomach may exist without the presence of free hydrochloric acid, although microbes are usually much more abundant in the stomach in hypopepsia and apepsia than in hyperpepsia.

The following cases illustrate what can be done in the treatment of the disorders of digestion by the employment of rational measures of treatment based upon a thorough going scientific investigation of the morbid conditions present.

CASE 1. The patient, a young lady of 28 years, had for years suffered from chronic indigestion and resulting malnutrition. Shortly before coming under my observation she had been under the care of a leading Philadelphia specialist for several months, all of which time she had grown steadily worse until she had become greatly emaciated. Of good heighth and naturally large figure her weight was reduced to seventy one pounds. In three months the patient gained forty-one pounds in weight. There was a marked improvement in respect to the hypopepsia from which she suffered, together with other serious symptoms which were dependent upon the condition of the stomach.

CASE 2. The patient, a lady of 26 years, from Illinois, had

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been a confirmed invalid for three years, during most of which time she had been bedridden and had been much worse for several months back. By advice of her physician she had been living wholly on malted milk. The patient was in such a wretched condition when she arrived that it was evidently necessary to cleanse the stomach by lavage, by which a great amount of putrescent matter was removed. A dry diet consisting of granose, a twice-cooked preparation of wheat in the form of dry flakes, and bromose, a preparation of thoroughly cooked and malted nuts, secured improvement within a week, at the end of which time she began to gain flesh, and in two weeks gained exactly fourteen pounds. The improvement was so great that she was able to walk several miles a day. This case was of course somewhat unusual in the rapidity with which improvement occurred. Nevertheless I have encountered similar cases.

CASE 3. The patient, a professional man, aged about 40 years, had suffered from indigestion for many years until he had about reduced himself to a skeleton and was unable to engage in his professional duties. Examination showed hyperæsthesia of the lumbar ganglia of the sympathetic and the solar plexus, anæmia, dilatation of the stomach and great intolerance of fat in any form. The following tables show the improvement which occurred in this case as the result of four months' treatment:

	NORMAL QUANTITIES	1.	2.
Total acidity	.180-.200 gms.	.232	.184
Calculated acidity	.180-.200 gms.	.300	.182
Total chlorin	.300-.330 gms.	.418	.366
Free H C l	.025-.050 gms.	.054	.030
Combined chlorin	.155-.180 gms.	.246	.152
Fixed chlorides	.100-.110 gms.	.114	.184
Coefficient of albumen digestion	1.00	.70	1.00
Coefficient of starch	1.00	.67	.46
Coefficient of salivary activity	1.00	2.00	.50
Fermentation	0.00	6.	3.
Chlorin liberation		1.10	.75

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I have in a number of cases seen a normal condition secured by a few months' treatment in cases in which hyperpepsia was present in an extreme degree, the total acidity reaching over three hundred milligrams per one hundred cubic centimeters of stomach fluid.

CASE 4. The patient, a young woman, has suffered for a number of years with migraine. The physical examination showed the stomach to be dilated to a marked degree. The chemical examination showed marked hypopepsia and the bacteriological examination gave 1,912,000 microbes to each c.c. of stomach fluid. At the end of three months the headaches had disappeared, there was a marked gain in health and strength, and the germs had disappeared, the stomach fluid being sterile.

CASE 5. Mrs. G., aged 60 years, suffering from apepsia. The chemical examination showed complete apepsia and the bacteriological examination gave over 200,000 microbes per c.c. In four weeks the number of microbes was reduced to 4,000 per c.c. A large number of similar cases might be cited.

PROGRESSIVE EMACIATION.

Cases are frequently encountered in which loss of flesh is the principal symptom for which medical relief is sought. Not infrequently the patient is unaware of any digestive or other functional disorder, but a searching investigation always shows some vice of nutrition, the headquarters of which is more frequently in the stomach than elsewhere. I present a few illustrations of what can be done in cases of this sort.

CASE 1. The patient was a young man, aged 24, who had steadily lost flesh for several years. The loss of flesh slowly continued for a few weeks after the patient was placed under treatment, but he finally began gaining and a few months later had nearly doubled his weight, having gained from ninety-one to one hundred and seventy-six pounds.

CASE 2. Mr. W., aged 30 years, resident of Michigan, a teacher has, by chronic invalidism, been reduced to a skeleton, was too weak to stand alone, and had, in fact, been con-

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fined to his bed almost wholly for four months. After two weeks treatment he began to improve, and gained steadily for six weeks at the rate of one-half pound daily. At the end of this time he considered himself well enough to return home.

CASE 3. Miss I., a young woman 22 years old, a resident of Michigan, had, for a number of years, been running down, and had finally become so much reduced that her weight was sixty-three pounds. After a few weeks treatment the patient began to gain, and continued to make steady progress in strength and weight until she tipped the scales at one hundred and eighteen pounds.

Numerous similar cases might be cited, as, for example, that of a gentleman who gained eight pounds in ten days, a young lady who gained thirty pounds in three months, another young woman who gained forty-six pounds in six months, another who gained forty-two pounds in four months.

The general plan of treatment pursued in extreme cases of this sort is to give the patient absolute rest in bed, with moderate application of massage daily, hydrotherapy, passive exercises, such as Swedish movements, and other rational measures of treatment. The diet must be of such a character as to furnish the largest amount of nutrition with the least digestive work on the part of the stomach, which also contains a due proportion of fat making elements. An abundance of cream, rich milk, well cooked grains and fruits constitutes an ideal fat and blood making dietary for those who are able to digest milk. In some cases, however, milk must be interdicted. Nuts are to be commended. Nuttose, a thoroughly cooked preparation of nuts and bromose, is perhaps the most fattening of all foods. It is at the same time very easily assimilated, as it presents the fat in a thoroughly emulsified state, ready for absorption.

INSOMNIA.

Inability to sleep is most commonly the result of some disorder of the stomach whereby the sympathetic nervous system, and through it the general nervous system, is disturbed. These cases are commonly regarded as suffering from some

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disorder of the nervous system, whereas the real trouble is in the stomach. The tongue is invariably covered with a dense, brown coat, the bowels are inactive, and a bacteriological examination of the stomach shows the presence of a great number of poison forming germs. The thorough cleansing of the stomach by lavage, a correct dietary, and the employment of appropriate measures of treatment, rarely fail to secure a prompt disappearance of the leading symptoms. Sometimes recovery is very prompt, in other cases several weeks elapse before the best results are seen.

CASE 1. The patient, a man upwards of 60 years, had for several years suffered from insomnia, until his case had come to be regarded as a practically hopeless one. By the aid of the measures suggested, however, the patient made an excellent recovery in the course of a few months. Ten years later he was still enjoying comfortable health.

CASE 2. Mrs. B. had suffered from insomnia for a number of years, until her case had come to be regarded as an exceedingly intractable one. The patient was greatly depressed and had become incapable of attending to even the most simple household duties because of the extreme degree of mental confusion and oppression existing. Four or five months of treatment restored the patient to sound health, and she still remains well.

CASE 3. The patient, a gentleman aged 45, had slept so little during the year previous to his coming under the writer's observation that he declared he had practically not slept at all, he being frequently unable to obtain more than half an hour's sleep for several nights in succession. The patient had become exceedingly depressed, unhappy and hopeless. By careful adjustment of the dietary and various appropriate applications of water, electricity, Swedish movements, etc., the patient soon began to improve, and in three months was enjoying excellent health and able to sleep soundly six or eight hours at night. Great gain in flesh, increase of appetite, gradual disappearance of depression and other symptoms from which the patient suffered, marked the return to normal conditions.

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CASE 4. Mr. M., aged 65 years. Had suffered to such an extent from insomnia and mental depression for three years that he had finally come to be regarded as an utterly hopeless case, and after spending some time in an insane asylum without beneficial results the case had been pronounced one of paresis and the friends had been informed that recovery was utterly impossible; although the patient might live for a number of years, there would be no improvement in his mental condition. Nevertheless, at the end of six months this patient was in the enjoyment of excellent health, best of spirits, was sleeping well and had an excellent appetite. The tongue was clean, the digestion good, bowels regular. Twelve years later the patient, although advanced in years, was still enjoying comfortable health and had suffered no return of insomnia.

In numerous cases patients suffering from insomnia and depression, as the result of disorders of digestion and nutrition are committed to an insane asylum as hopelessly incurable cases and perhaps ultimately become incurable, who might, by timely and judicious application of rational means of treatment have been restored to health and usefulness.

CHLOROSIS.

Within the last few years much light has been thrown upon the nature of this disease. By the investigations of Meinert and others it has been clearly shown that it is a disorder of nutrition and probably dependent upon the development of toxic substances within the body whereby the blood-making processes are seriously interfered with, the whole body thereby suffering through the derangement of almost every function and the development of various morbid conditions. Meinert has shown that dilatation of the stomach and prolapse of the stomach and bowels are conditions universally present in chlorosis. My own studies of this disease have confirmed these observations. In the opinion of the writer this disease must be regarded as a true toxæmia. Restoration of the prolapsed viscera to position by skillful application of abdominal massage, tonic baths, Swedish movement, gymnastics, a

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dietary adapted to the development of fat and blood, and so far as possible the correction of morbid mental and moral conditions, have, in the writer's experience, invariably resulted in a rapid return of the patient to a normal condition. In one case a patient, a young woman residing in Chicago, aged 20 years, had for more than two years suffered from the characteristic symptoms of chlorosis, which had become more and more pronounced. The patient was in a most wretched condition. She had no appetite and was extremely weak, thin in flesh and anæmic. The hæmaglobin was barely half the normal amount, and the blood count was 3,500,000. At the end of six months' treatment the patient had gained over thirty pounds in flesh, the hæmaglobin and blood count were normal, there had been a proportionate gain in strength, and the patient returned to her friends in the enjoyment of excellent health, in which improved condition she remains after the lapse of two years.

HYSTERIA.

This disease, quite to frequently regarded as a mental perversity, is almost invariably found to be connected with a hyperesthesia of one or more of the viscera of the trunk. The popular idea that hysteria is almost invariably connected with disease of the ovaries is an erroneous one, disorders of the stomach, liver and other viscera being quite as frequently the seat of disturbance as disease of the ovaries. The disease is certainly closely associated with some morbid condition of the sympathetic nervous system, and success in its treatment is to be found in the recognition of this fact and in ferreting out the source of the sympathetic nerve disturbance. A large number of cases might be cited as illustrative of the excellent results to be obtained from the judicious employment of careful regimen, exercise, baths and electrotherapy in this class of cases. Two or three typical cases will suffice.

CASE 1. The patient, a young woman, age 25, a resident of Iowa, presented herself a most pitiable object. She was nervous to an extreme degree, emaciated, sallow, extremely anemic, and so weak as to be scarcely able to sit in an erect

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position when placed in a chair. Vomiting occurred after each meal. This symptom was so pronounced and persistent that the patient declared she had not kept a mouthful of food upon her stomach for three years. Violent hysterical convulsions occurred at frequent intervals, the patient sometimes remaining in a perfectly rigid state without the slightest movement for many hours at a time. By a judicious application of the methods suggested this patient was restored to such excellent health that she became able to engage in the ordinary duties of a housewife, and was entirely free from the distressing symptoms from which she had suffered for nearly ten years.

CASE 2. The patient, a young woman 26 years old, had been confined to her bed most of the time suffering from what was supposed to be disease of the spine and a great variety of nervous symptoms too numerous to mention. The spine was found to be extremely sensitive its entire length. The lumbar ganglia and the solar plexus were sensitive to a high degree. The patient had dilatation of the stomach and prolapse of the bowels and the right kidney was moveable. The pelvic organs presented no evidence of serious disease. This patient had been treated for years for inflammation of spinal cord, spinal irritation, spinal anemia and various other morbid conditions of which the spinal cord had been supposed to be the seat by the physicians under whose care she had been. When encouraged to take exercise the patient complained of aggravation of the symptoms and gradually became helpless until she rarely stood upon her feet, going about in a wheel chair whenever she could be induced to venture away from her bed. This patient was by a few months' treatment restored to good health and became able to take long walks and enjoy them, acquired a good appetite, gained rapidly in flesh and strength, and was almost wholly relieved of the spinal irritability from which she had so long been a constant sufferer. The greatest relief seemed to be afforded in this case by the application of an abdominal supporter, whereby the viscera of the abdomen were held in place and the abdom-

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inal sympathetic nerve thus relieved from abnormal strain, a frequent source of spinal pain and irritation.

CASE 3. The patient, Miss S., a resident of Chicago, had been for three years confined to her bed almost constantly. Several months of this time she had spent in an excellent hospital, but without apparent benefit. On examination, I found the patient suffering from dilatation of the stomach, prolapse of the bowels, rectal irritation, prolapse of the uterus and ovaries, extreme nervous irritability, emaciation, exhaustion, depression, and indisposition to effort of any sort. Was hysterical to quite a degree, and held her friends under such complete subjection that it was necessary to isolate her from them. In this case the young woman's trouble had been wholly attributed to the diseased condition of the ovaries, and it had been supposed to be necessary to have the organs removed. In this case, however, as in scores of similar ones, the application of appropriate measures of treatment demonstrated the uselessness of a surgical procedure, as the patient was restored to such excellent health that within a year she was able to take a position as a public school teacher, a position which she has now held continuously for a number of years.

MIGRAINE.

This disease, which has proved so refractory to medicinal remedies of all sorts, yields in a most gratifying manner to the presevering application of appropriate measures of treatment. In another paper the writer has undertaken to show that this disease is due to a disturbance of the great sympathetic nerve. This disturbance may be the result of traction upon the abdominal ganglia or solar plexus by prolapsed bowels, a prolapsed stomach, or a movable or floating kidney, or it may arise from the development of toxic substances in a dilated stomach or of retained fæcal matters in a dilated colon. Whatever the source of the irritation may be we have always found an extremely sensitive condition of the abdominal sympathetic ganglia associated with this disease, and in a great number of cases have seen the headaches dis-

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appear in conjunction with the disappearance of the hyperæsthetic condition of the sympathetic. Anyone who will take the pains to examine carefully the condition of the abdominal sympathetic by pressure upon the abdominal ganglia, which lie against the spine, and may be readily reached by deep pressure applied at a point two inches on either side of the umbilicus, will be able to verify the statement made with reference to the constant association of an irritable condition of this nerve with the condition variously known as migraine, nervous headache and sick headache.

CASE 1. Mr. A., age 48, had for several years suffered from migraine, the attack sometimes being so severe that his life was despaired of and occurring so frequently that the patient was reduced to an extremely wretched condition; was greatly emaciated and a constant sufferer. By advice of his physician he had subsisted almost wholly upon a meat diet for a few years, but his symptoms had grown worse rather than better. Under a rational dietary and appropriate treatment consisting of lavage of the stomach, general massage, application of electricity and tonic baths, the patient was very soon relieved from his headaches and made rapid improvement in other particulars. In this case it was found necessary to confine the patient to an almost exclusive diet of kumyzoon for several weeks.

CASE 2. Mrs. H., age 44 years, had for several years suffered from very severe attacks of migraine which were also accompanied by rheumatic symptoms, general weakness and an abnormal increase of flesh. Thorough application of rational measures resulted in the complete cure of this case in the course of a few weeks.

CASE 3. Mrs. E., aged 39, had been for twelve years suffering from severe attacks of migraine; was entirely cured of headaches after seven weeks' treatment.

CASE 4. Mrs. B., aged 35 years, had suffered from migraine for several years until she had become greatly reduced in strength and general health. Examination of the stomach fluid showed her to be suffering from hyperpepsia to a very extreme degree. There was dilatation of the stomach and

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general prolapse of the abdominal viscera. The application of careful treatment effected a radical cure.

TIC DOULOUREUX.

In the writer's opinion this disorder is closely allied to migraine, though differing from it in a very characteristic way. The same morbid conditions have been found present in every case of this disease which has come under my observation, as have just been noticed in relation to migraine. In five typical cases which I have had under observation at the Sanitarium dilatation of the stomach has been found present in all, and in all cases the tongue has been thickly coated and slimy and the breath foul. The measures of treatment adopted have been the same as those employed in migraine, viz., an aseptic dietary, the application of galvanism, the sinusoidal current, fomentations, wet girdle, and the abdominal supporter as means of relieving irritation of abdominal sympathetic, massage, Swedish movements, tonic baths carefully administered, and abundance of out-of-door exercise. The dietetic and other treatment for migraine and also for this disease the writer has fully described in a paper entitled "Migraine; Its Cause and Radical Cure." Local applications of galvanism are made to the affected region and to the cervix and abdominal sympathetic. Hot and cold applications to the spine and fomentations over the affected part are also of some service, although the amount of relief obtained by local applications during an attack is not so great as might be expected. In some cases I have found it necessary to make an application of chloroform to each of the sensitive points from which the sudden darting pain seems to radiate. In some instances there is but one such point, while in others several are found. Chloroform is administered by means of a hypodermic syringe, five to fifteen drops being injected into each point. This injection is sometimes followed by neuritis and a temporary paralysis, from which, however, recovery occurs after a few weeks. I have succeeded in curing this disease in every case in which the patient has remained under treatment for a suitable length of time.

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CASE 1. Mrs. T. F. H., aged 28, had suffered for three years from an attack of tic douloureux which had become more and more severe until for about a year she had been an almost constant sufferer. The upper lip was swollen to such a degree that she could not use a spoon in eating and the jaws could not be opened more than a quarter of an inch in consequence of the constant muscular spasm. By application of the measures noted this patient was in three months entirely cured and has remained well since, now more than fifteen years.

CASE 2. Mrs. H. of Indiana first came under my care for the relief of migraine with which she had suffered for a dozen years, and she had been informed that she could not expect a cure as she had had the benefit of the most distinguished medical counsel, but without relief. She was confined to her bed and was an almost constant sufferer from the disease. Thorough application of the measures of treatment above outlined resulted, however, in a perfect cure in the course of six months. A year or two later the patient while staying for a week at a mineral spring resort taking frequent hot baths and disregarding the dietetic rules laid down for her, experienced a severe attack of tic douloureux. From this time the attacks recurred regularly once or twice a week for several weeks and she returned to the sanitarium for treatment. The application of the same measures previously employed for migraine resulted in a permanent cure of the tic douloureux, and the patient has remained well to the present time, now some seven years.

CASE 3. Mrs. A., aged 43 years, suffered from tic douloureux for five or six years. Several serious operations were performed for the excision of the affected nerve, but without benefit. After several months' treatment which included two or three injections of chloroform at the painful points, the patient was entirely relieved of the disease and has now remained cured for three years. When last seen the patient had gained twenty pounds in flesh and was enjoying excellent health.

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CASE 4. Mr. C. had suffered from most excruciating attacks of tic douloureux for twenty years. During this time these attacks had occurred many times daily, and during the entire period with the exception of an interval of two or three weeks some years previous. After three months' treatment this patient was so greatly relieved that he expressed himself practically well, and returned to his home. There was still some tenderness of the tissues of the affected region, but the patient was relieved entirely of convulsive attacks, and after returning home reported that improvement was still continuing.

EPILEPSY.

I have long been convinced that idiopathic epilepsy, at least the convulsive seizures of this disease, are more or less directly due to the development within the system of abnormal toxic substances or normal tissue poisons in abnormal quantities. This belief has led me to give special attention to diet and eliminative treatment in the management of this class of cases. More than twenty years ago I was convinced of the importance of a strict dietary regimen in these cases and especially of the necessity of prohibiting the use of such articles as meat, cheese, shell fish, and other substances which readily undergo decomposition in the stomach and intestines. In the discussion of a paper which I recently presented before the New York Academy of Medicine on the bacteriology of the stomach, Dr. Roberts, a practitioner of large experience, remarked that he had succeeded in curing a number of cases of epilepsy by an exclusion of flesh food from the dietary, and by the application of hygienic measures, vigorous muscular exercise, free water drinking, daily baths, especially moderately warm baths. The galvanic bath and the electric light bath I found particularly serviceable in these cases.

CASE 1. Mr. S., a young man aged 20, suffered for three years from epilepsy, the result he believed of a partial sunstroke while he was working in the harvest field. The patient was put upon an aseptic dietary and a course of treatment indicated, with the result that in a few months he was entirely

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relieved of the epileptic seizures and he has now remained well for nearly twenty years.

CASE 2. Miss M., a young lady aged 20, had suffered from epileptic attacks for five or six years. By the advice of two leading specialists the ovaries had been removed, although there was no indication of disease in these organs other than the fact that the attacks were most likely to occur at the menstrual periods. The patient was no better, however. Every two or three weeks she suffered from a rapid succession of seizures, often remaining in this state for two or three days, an attack occurring as soon as she fell asleep as the result of any slight noise or other disturbance. Just at the close of one of these attacks I determined the uro-toxic coefficient by injection of the urine into the veins of a rabbit. The result showed that the urine possessed more than double the normal amount of toxicity. The effect of injection was to produce a characteristic epileptic attack in the rabbit at the close of which the animal died, one-half minute from the beginning of the injection. The adoption of strict aseptic regimen and vigorous eliminative measures, including copious water drinking, resulted in a great amelioration of the symptoms in this case.

Now that the fad of operating for epilepsy has disappeared, medical measures whereby the disease may be controlled and its inconveniences mitigated are likely to receive more careful and considerate attention than has been the case for forty years.

NERVOUS ASTHMA.

In so-called nervous asthma the patient is unquestionably suffering from a toxic condition which manifests itself chiefly through the symptoms characterizing this disease. The physical examination has in my experience shown dilatation of the stomach or prolapse of the stomach and bowels to exist in each case, and to be a constant condition in this disease. Lavage of the stomach, an aseptic dietary, the use of intestinal antiseptics and the application of measures to build up the general health and relieve the irritation of the abdominal sympathetic nerve which always exists in these cases have in

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my hands proved uniformly successful in relieving this very distressing condition.

CASE 1. Miss L., of Michigan, a young woman 20 years of age had suffered several years from asthma. On examination I found prolapse of the stomach and bowels, an extreme hyperesthesia of the lumbar ganglia of the abdominal sympathetic. Pressure upon these ganglia and upon the pneumogastric were sufficient to provoke an attack of asthmatic breathing at any time. The application of the measures above outlined resulted in a cure in a few months.

CASE 2. Mrs. D., of Michigan, a lady aged 40. Suffered for many years from asthma, which she supposed to be due to disease of the lungs. On examination the patient was found to have extreme dilatation of the stomach, prolapse of stomach and bowels, and movable right kidney. There was a high degree of irritability of the lumbar ganglia. The case was entirely cured by the adoption of an aseptic dietary and the employment of suitable hydrotherapeutic measures, and the application of an abdominal supporter. She has not been troubled with asthma for eight or ten years. Similar cases might be cited.

SUPPOSED PELVIC DISEASE IN WOMEN.

A careful study of the cases of more than ten thousand women supposed to be suffering from diseases peculiar to their sex has convinced me that in a very large proportion of cases the suffering is not due to pelvic disease or displacement of pelvic organs, as women generally suppose, but to a disturbance of the sympathetic nerve resulting from prolapse of the stomach or bowels, a movable or floating kidney, or dilatation of the stomach. In a paper entitled "The Value of Exercise as a Therapeutic Means of Treatment of Pelvic Diseases of Women" which I presented before the American Association of Obstetricians and Gynæcologists, I reported a considerable list of cases in which patients suffering from various forms of supposed pelvic disease, who were cured without surgical measures, and with very little local treatment, by the application of measures for the improvement of

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the general health and the correction of the general visceral prolapse, the existence of which in connection with these cases I have pointed out in the paper referred to and in various subsequent papers.

I think I have clearly established, by an extended series of observations, that displacement of the pelvic viscera is almost invariably accompanied by displacement of the bowels and other abdominal viscera, and that the displacement of the abdominal viscera precedes the dislocation of the pelvic organs, and is by far the greatest factor in the production of numerous symptoms which women often describe under the general term of "weakness," such as backache, dragging across the abdomen, pain in the side, etc.

In many cases in which a cure of pelvic diseases is supposed to be due to operations for repair of a slight tear in the perineum or the cervix, the benefit which the patient is supposed to derive from the operation is really due to the three or four weeks spent in bed in a horizontal position, whereby the dislocated abdominal viscera have an opportunity to return to their normal places, the restrictions of dress being removed and the position such that gravity does not act adversely. The return of the prolapsed organs to their normal places relieves the strain upon the abdominal sympathetic, and thus relieves the various symptoms from which the patient suffers.

In not a few of these cases the application of a properly adapted abdominal supporter is of far greater importance than a surgical operation or any sort of local treatment. Indeed, the various local congestions, catarrhs, etc., to which the pelvic organs are subject are largely due to the displacement resulting from the overweighting of these organs by the prolapsed viscera of the abdominal cavity.

In another paper I have undertaken to deal with this question more at length, and to show the futility of many of the procedures which are commonly employed in the treatment of this class of disorders. I might cite many hundreds of illustrative cases, but will omit doing so, as I have already presented many such cases in connection with other papers,

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particularly a paper presented before the International Periodical Congress of Gynecology and Obstetrics, entitled "The Relation of Static Disturbances of the Abdominal Viscera to Displacements of the Pelvic Organs."

OBESITY.

There is certainly no class of disorders in which the application of pure medicinal agencies is more clearly futile than in the treatment of obesity. In this disease, as has been clearly shown by Oertel and other European investigators, diet, regimen, and the application of physiological remedies are the only means which can be relied upon for tangible and permanent results. In treating this class of patients, I first of all restrict the diet, in quantity and in kind. In some instances I allow the patient to eat almost anything he chooses, provided he eats but one thing. I have secured excellent results by placing the patient upon an exclusive diet of grapes, apples, or some other fruit. A diet of kumyzoon, buttermilk, granose, zwiebach, gluten biscuits, taking but one article at a time, has also proved efficient. When a patient takes but one article he soon tires of it, so he is quite certain not to take too much. If bread is permitted it must be eaten dry only. It is best taken in the form of zwiebach, or gluten biscuit. The patient is not allowed to take fluids at meal time, but he may drink at other times as much as he likes. Next to diet, exercise is the most important matter. The patient should exercise to the extent of decided weariness two or three times a day. Before breakfast, or rather, before eating, is the best time for exercise. Walking is, as a rule, not sufficiently vigorous work to reduce the flesh appreciably unless the patient has an opportunity to climb hills. Cold baths, electric light baths, Turkish baths, and other eliminative measures used in moderation are useful, but care must be taken in the use of hot baths, or injury will be done. Hot baths should always be followed by cold spray or shower, and for many persons the cold shower or spray is to be preferred. It is an excellent tonic, and stimulates the oxidation processes.

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CASE 1. Mr. S., lawyer, residing in South Carolina, had for several years weighed over three hundred pounds. He recently found himself rapidly gaining in flesh, and at the time he came to the sanitarium his weight was three hundred and fifty pounds. A few weeks sufficed to reduce his weight more than one hundred pounds.

CASE 2. Mrs. M., a lady 45 years of age, had for some reason been steadily gaining in flesh until she had become, as she said, "prodigious." Though short in stature, she weighed over two hundred and twenty-five pounds. A thorough course of treatment above outlined resulted in steady loss of flesh until the patient's weight dropped below one hundred and seventy-five pounds, when she found herself very comfortable, and suspended treatment.

It is not wise to carry the reduction of flesh to the original weight as the system accommodates itself to the increase of flesh, and injury might be done either by the too rapid removal of an excess of flesh or by an excessive reduction in flesh. A very fleshy person should never undertake to reduce the flesh to within less than twenty-five or thirty pounds of the original weight. When this plan is adopted the patient's general health improves instead of diminishes as it does in cases under starvation methods, and many of the various special methods adopted for the reduction of flesh. And the results are permanent provided the patient will carefully follow the modified regimen laid out for him at the end of the course of treatment.

CONSUMPTION.

Notwithstanding the great number of specifics which have been brought forward for the cure of this disease, including serum treatment of various forms, pulmonary tuberculosis still claims about one-seventh of all the victims of disease in civilized countries, a fact which must be regarded as a reproach to modern sanitary science considering the length of time which has elapsed since the contagiousness of the disease was fully established. That ordinary medical means accomplish little or nothing in the cure of this disease is a

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fact too well known to need mention. Tubercular disease of the skin, of the bones and of other parts readily accessible to surgical and other remedial measures, is not easily cured, and when the seat of the malady is in a part so inaccessible as the structures of the lungs the difficulty of dealing with it becomes still greater.

Numerous acute observers have called attention to the fact that consumption really does not begin in the lungs, but finds its foundation in a lowered condition of the body, which thus becomes a prey to the parasitical microbes to which the name of Koch is attached.

Impaired digestion, resulting in impoverishment of the blood, defilement of the tissues by an excessive production of ptomains and other toxic substances in the alimentary canal, is undoubtedly the starting point of pulmonary consumption in a large proportion of cases. Sedentary habits with resulting stagnation and deficient lung exercise are other important means whereby the bodily resistance is lowered and tubercular disease of the lungs invited. Careful adjustment of the dietary to the condition of the stomach and the needs of the body, carefully regulated systematic exercise, massage, Swedish gymnastics, manual Swedish movements, gymnastics with or without the aid of special apparatus, the judicious employment of hydrotherapy, proper application of electricity—these must be regarded as the most efficient measures in dealing with this disease, but even these measures do not always succeed except under the most favorable conditions.

I have, however, seen so many cases of recovery from this dire malady by the employment of the measures named in work at the Battle Creek Sanitarium that I determined several years ago to secure if possible the same advantages for patients in a dry and elevated region. Within the last two years the establishment of a well-equipped sanitarium, under the same auspices, at Boulder, Colo., has afforded opportunity for observing the progress of patients under rational treatment at an elevation of between five and six thousand feet. The large number of recoveries which have occurred,

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and the astonishing rapidity with which recovery has occurred in many cases, has convinced me that by a combination of thoroughly rational and physiological treatment with climatic advantages a cure may be secured in 75 or 80 per cent. of all cases of consumption when treatment can be begun in the early states of the disease, and in perhaps 40 or 50 per cent. recovery may be expected in cases in which the disease has attained to the second stage. Recovery may be expected in a small proportion of cases even when the disease has attained a still greater advancement.

CASE 1. Rev. G. T. This patient came under my care in the autumn of 1876. I found a cavity as large as a large hen's egg in the left apex. The patient was expectorating freely; portions of the yellow elastic tissue and great quantities of pus were constantly present in the sputa. He had an even temperature of 103, pulse was 90-100, breath exceedingly short. The patient was greatly emaciated and scarcely able to walk. I pronounced the case a hopeless one and advised the patient to return home, but he refused to do so and insisted upon receiving treatment. He showed so much pluck and determination that I thought I ought to give him a chance. The result was that in four months the patient returned home with a normal temperature, only a slight cough, very little expectoration, pulse sixty, able to walk miles and to resume his profession as clergyman. After a few months more spent under my care by my advice he went to Colorado to reside. For several years I heard from him frequently and he always represented himself as enjoying good health. I have not heard from him for several years past. He may not now be living, but I am certain that he enjoyed a good many years of comfortable life as the result of rational treatment and management.

CASE 2. Rev. J., another clergyman, age 40 years, showed first symptoms of tuberculosis some four years ago. I urgently advised him to place himself under treatment, but he declined to do so. The disease progressed for a year and a half when several hemorrhages, great emaciation and loss of strength, high temperature, and a harrassing cough compelled him to

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seek advice. After a few weeks' rest and treatment I sent him to Boulder, Colo., where our branch sanitarium is now located, and secured for him the advantages of rational and physiological treatment as above outlined with the result that in six months he was restored to good health. He has since resided in Guadalajara, Mexico, where he is acting as business manager of a sanitarium devoted especially to the treatment of this class of maladies.

CASE 3. Mrs. B., case of pulmonary and laryngeal tuberculosis. The patient's age was 32 years. The physical examination showed extensive tubercular deposit at the upper part of the left lung. There were moist rales. The patient had entirely lost her voice, could only whisper, was greatly reduced in flesh and strength, and was confined to her bed the most of the time. After a few weeks' treatment I sent this patient to the Colorado Sanitarium at Boulder, where, after one or two relapses, her health seemed to be established upon a firm basis. She has since returned to her home in Kentucky and continues in good health.

A considerable number of similar cases might be reported, showing the benefit to be derived from rational treatment combined with climatic advantages.

BEDRIDDEN NEURASTHENICS.

Neurasthenia, though commonly treated as a disease, is, in the opinion of the writer, merely an assemblage of symptoms which have sometimes one, sometimes another morbid condition for their foundation. For the most part the symptoms of neurasthenia may be directly traced to disturbances of the sympathetic nervous system. The most prominent causes of these disturbances are :

(1) The contact of stimulating, irritating substances generated in the stomach and intestines with the sympathetic nerve fibers found in the mucous membrane lining these organs, and to reflex disturbances arising from this source of irritation.

(2) Circulation of similar poisons in the blood and tissues, whereby they reach the sympathetic nerve centers.

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(3) Irritation of the sympathetic nerve centers, particularly the solar plexus and the lumbar ganglia, by a traction of the prolapsed stomach, prolapsed bowels, prolapsed liver or spleen, and floating kidney or depressed pelvic organs.

In the treatment of neurasthenia it is necessary to look carefully for the cause of the nerve disturbance and to look carefully to its removal. Hundreds of nervous women annually are subjected to operations for repair of minute injuries of the cervix or perineum without the slightest relief, when a thorough course of massage with careful replacement of the viscera by a skilled manipulator, together with proper regulation of diet, exercise and suitable baths, are able to effect a rapid cure. I have had under my care some scores of such cases within the last twenty years, and might easily fill a good-sized volume with the records of successes in cases which had resisted the ordinary measures of treatment, including various operative procedures.

CASE 1. Miss M., of Michigan, had been bedridden for six or seven years and had been long regarded as an incurable case. The patient was emaciated to an extreme degree and suffered with a long category of neurasthenic symptoms, which need not be here repeated. At the end of three months the patient had gained thirty-seven pounds in flesh and had made a proportional gain in strength and general vigor. The neurasthenic symptoms had wholly disappeared and she was practically well, requiring only some further gymnastic training and tonic baths for a few weeks to restore her to excellent health.

CASE 2. Mrs. B., aged 38, a cultured lady of highly nervous temperament, who, through the strain of life in a large city, and numerous family cares, had become reduced to a state of nervous wretchedness such as I have seldom seen. In this case, the nervous irritibility was so great that the patient would frequently fall unconscious as the result of a sudden noise or unusual sight. The patient complained of disturbance of the perception of color, everything about her frequently appearing green, yellow, or red. Occasionally she was attacked by total blindness for the period of half a minute

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or more. On examination the patient was found to have a dilated stomach, prolapsed bowels, and some displacement of the pelvic viscera. She had been under constant treatment for the pelvic disorder for a long time, but without remedy. By the application of an abdominal supporter, and the employment of measures above outlined, the patient was restored to good health, and now, after the lapse of four or five years, is still in the enjoyment of excellent health.

CASE 3. Mrs. M., aged 27 years, had been for six or seven years a complete invalid; she was constantly afflicted with morbid fears. She could not endure to be alone, was sleepless, depressed, constantly haunted with a fear of death. At the end of four or five months the patient returned home enjoying excellent health, and although several years have elapsed she still remains well.

I might prolong this paper to an almost indefinite length in reporting various forms of nervous disorders, the uric acid and other diatheses, of chronic disorders of the bladder of men and women, of prostatic disease in men and similar conditions in those who have visited the sanitarium for relief after having sought it in vain for long periods under the conditions available at home. This paper is already too long, however, and I forbear.

I wish, in conclusion, to say as at the outset that I claim neither special skill nor the possession of any unique or peculiar methods of treatment by which success may be obtained in the treatment of cases which have been regarded as incurable, but that I attribute the success which I have had the pleasure of constantly seeing in dealing with this class of disorders wholly to the judicious regulation of diet, regimen, and individual habits, in connection with the application of the resources of sanitary methods, particularly those measures which may properly be termed rational or physiological and the use of which may be to say the least most conveniently managed in a well-equipped and scientifically conducted sanitarium.

In connection with the above paper, the writer presented and described two new instruments:

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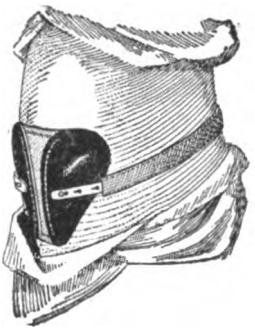

FIG. 1.—Patient after the Application of the Supporter.

1. An instrument for locating the lower border of the stomach in cases in which this cannot be done by palpatation or claportemont. This instrument consists of a tube resembling an ordinary stomach tube, in one end of which is arranged an electrical device whereby a humming or buzzing sound is produced when an alternating electrical current is passed through it. Passing the tube into the stomach, it is only necessary to locate the sound by the stethescope as the tube is passed in different directions to outline the lower border of the stomach.

2. The abdominal supporter, constructed somewhat on the principle of a hernial truss, the relaxed abdominal wall being treated as a double hernia.

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THE TREATMENT OF CHRONIC ARTICULAR RHEUMATISM BY FIXATION IN PLASTER OF PARIS DRESSING.

W. E. BURTLESS, M. D.,
St. Clair.

There is probably no subject from a medical standpoint in which our literature is more meager, more unsatisfactory, and to which the onward march and progress of the science of medicine has contributed less from the result of investigation and experiment than in rheumatism. And yet I think it can safely be asserted that rheumatism in its various forms and classifications is today the cause of more pain, more human suffering, blights more lives, does more damage, and is a greater menace to the welfare of the nation than any other single disease or pathological condition with which we are called upon to deal.

This at first thought may seem to be a sweeping assertion, but if in addition to all clearly defined cases of acute and chronic muscular or articular rheumatism we consider as being under the same head and presenting for treatment the same pathological phenomena the various forms of gout, gonorrhœal rheumatism, rheumatoid arthritis, sciatica and some other types of neuralgia which seem to be inseparable from a rheumatic condition, I think it will be admitted that we have classed under the head of rheumatic affections a group of ailments which in their harm-producing power is appalling.

Rheumatism in its more insidious forms is to the muscular and osseous systems what neurasthenia and the so-called nervous prostration is to the nervous arrangement, and both

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are on the increase. The pace at which we as a nation live, both physically and mentally, the terrible speed at which we run the engine of life in our mad rush after wealth and fame, or in the headlong pursuit of pleasure and the gratification of our passions, is producing a crop of mental or physical cripples, whose numbers are steadily augmenting and at an alarming rate.

And yet, notwithstanding this condition, who is there among us all who can answer the simple question "What is rheumatism?" It is a surprising fact that after much investigation we are still comparatively groping around in the dark as to the cause and pathology of this peculiar condition. We have the old theory of a " mataries morbi " in the blood which attacks the fibro-serous structures of the locomotor apparatus, and of those who find the cause in an excess of lactic or other acids, or in a malarial poison with lactic acid as a result rather than a cause; the theory of a specific poison absorbed by the tonsils, or that micrococcocci pass into the blood through the sweat glands; the theory of Page, who traces all rheumatic affections to " a perversion of the glycogenic function of the liver and contamination of the blood;" or of all of the later investigators who seem to be unanimous in classing rheumatism as a microbic disease and giving as its cause some attenuated form of the pyogenic bacteria. Many distinguished writers now declare it to be an infectious disease, and some even go so far as to ascribe it to the pneumoc occus of Frankel and the bacillus of Friedlander, while Lucatello, of Genoa, claims to have isolated a distinctive microbe of rheumatism.

And yet with all these theories considered in connection with the generally accepted ideas as to diathesis, diet, fatigue, exposure and climate, we have not as yet heard an explanation or theory that seems to be able to carry conviction with it or to stand the light of investigation and experience. And we are still further in the mire of doubt and uncertainty concerning its pathology.

In treatment we at least have the light of experience to guide us. That of the acute or more febrile types I shall not

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allude to. My experience and work has been mainly upon cases of long standing, many of which came under my observation and care only after having exhausted every possible hope of relief frcm our profession in their respective cities, and in some cases after having traveled pretty well all over the world in search of freedom from pain.

During the past ten years I have treated at the resorts of St. Clair many hundreds of cases varying from the simple touch of chronic muscular rheumatism to the hopeless victim of arthritis deformans, whose every joint seemed to have become a permanent seat of pain and suffering, twisted and distorted until hideous to look upon. And my experience in this line has led me to the irresistible conclusion that internal medication in the treatment of chronic rheumatism is, to say the least, most unsatisfactory.

The results looked for from the alkaline treatments have never been realized in chronic cases, and the apparently splendid effects of salicin and the various preparations of salicylic acid seem to have resolved themselves to a great extent into the simple benefit of an anodyne. During the past few years we have been flooded with so-called specifics, such as salophen, phenocoll, salapyrin, cresalol, tolysol, and a score of other drugs with fancy sounding names in which my faith has not even led me to experiment.

Of course, there are many forms of chronic rheumatism in which the trouble can be directly traced to some defect of digestion, secretion or elimination, and in these the proper treatment should afford relief; but how many cases we see where this mysterious disease or condition exists in a patient in whom we cannot find any other apparent defect, in one who eats well, digests well, sleeps well, is of a happy temperament, whose functions of secretion and elimination seem to be, at least for the time being, in a normal condition, and yet who has a knee or an ankle, a foot or hand, which insists upon remaining in an intensely painful condition and condemning to a life of misery and suffering one who would otherwise enjoy a happy and useful existence.

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In such cases I must confess that I have found little or no benefit from internal treatment, but they can be benefitted and thousands of them are annually relieved and in very many instances absolutely cured, by what I shall simply allude to in passing as the treatment by hot baths and other applications of the hot sulpho-saline mineral waters that are found in this part of Michigan.

The mineral water advocate will claim these cures as a result of the hidden and subtle virtues that are possessed by his favorite spring or well, while the sceptical student of scientific medicine may probably attribute them to the well-known results of heat and manipulation, with the added virtues that may come from the salt bath and possibly from sulphurous gas, etc.; but be that as it may it still remains an indisputable fact that hundreds of people leave this city for their homes every year, hale, hearty and happy, who come here suffering, crippled and almost helpless after having exhausted every other means to obtain relief.

In advanced cases, however, we find a condition which quite often baffles even the most persistent course of balneotherapeutics or massage. I refer to that stage of chronic articular rheumatism in which after the inflammation has been reduced, we find the joint more or less fixed at various stages of flexion, where in some cases we have what seems to be a condition of pseudo-ankylosis without very much swelling, in others where the articular surfaces are surrounded by a clearly definable deposit with much thickening and congestion, and yet again where an apparent shortening of the flexor muscles or tendons seems to be the only obstacle in the way of a proper use of the joint. One or all of these conditions may be present.

I will leave the almost endless variety of theories covering the pathology of this state to some one who has more time and ability for investigation, and confine myself to the elucidation or suggestion of an idea in its treatment, an idea which although it may be open to criticism from many points has been extremely satisfactory in producing for me in many cases the most gratifying of results.

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When, seven or eight years ago, I began using extension and counter extension by the ordinary method of weight and pulley combined with heat and massage, I soon found it impracticable for many reasons. The weight, to be effective, had to be too heavy, the patient confined to one position soon became nervous and exhausted, and there was always a tendency to flex the leg for relief, thus counter-acting in a measure the extension. It was then that I began the use of plaster of paris dressing from which I am now every season obtaining most happy results.

Briefly the modus operandi is as follows: The evening previous to being encased in plaster of paris the joint is packed in hot mineral water and kept so during the entire night. In the morning, the pack being removed, the knee (I will take the case of a flexed knee) is bandaged with a hot solution of carbolic acid, about one to twenty. Several hours later this is removed and a plaster cast applied in the ordinary manner, as for fractures, etc. Now comes the painful and important part of the procedure. The cast is applied very quickly so as to be entirely on before any portion of it has begun to set. Just as it is beginning to set, the leg is grasped around the ankle by an assistant and slowly but firmly extended. In this he is assisted by the operator, who bears down in some cases with almost his entire weight upon the flexed knee. This, of course, is extremely painful and in some patients must only be partially carried out; but it is often surprising how much extension can be made and held even in the most weakened patient until the cast has completely hardened. It is also surprising to note how short a time the pain produced by the extension persists, it being, as a rule, but a few moments until the patient declares that the leg feels quite comfortable. The heat produced by the chemical action of the plaster of paris in hardening may assist in bringing about this result.

The cast after being allowed to remain in place from six to twenty-four hours, according to the strength of the patient, is removed and the joint and leg thoroughly kneaded and measured to compare with its previous condition. The patient is

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then given a hot pack every night or is allowed to rest for three or four days, when the cast is repeated.

I will not attempt here to explain in detail the results I have obtained from this treatment, but will simply ascribe them to two general virtues; first, that of a forced and fixed extension; and second, the effects on the circulation caused by an evenly applied pressure and the consequent increase of absorption and decrease of swelling and inflammation.

Let me, in closing, cite one case as an illustration. Mrs. S., a wealthy lady, 46 years of age, came under my care August 19th. She had been suffering about three years and had not stood upon her right foot for over two years, nor upon the left for eighteen months. Her right leg was flexed almost at a right angle with the thigh and the left at about forty-five degrees. Very little mobility in either, and that only with intense pain. Considerable enlargement and both feet and ankles involved. Began packing with hot mineral water at once and applied first cast August 28th. In all applied fourteen casts to right leg and six to left, several of which included the ankle and each foot.

Patient recovered the entire use of both legs and left for her home about October 25th, being at that time able to walk with the aid of one crutch. A month later she wrote that she was taking regular exercise with the aid of a cane only, and carried that more because of lack of confidence than anything else. Even this was soon discarded and a year later she was enjoying perfect health without any recurrence of rheumatic trouble.

As I have said before, this treatment is open to criticism, but I offer it for what it is worth, and hope if any of my hearers should try it they will be rewarded with as satisfactory results as I have been.

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ON THE PHARMACOLOGY AND THERAPEUTICS OF DIGITALIS AND ITS ALLIES.

ARTHUR R. CUSHNY, M. D.

Ann Arbor.

Digitalis has been in use in medicine for over one hundred years, Withering's treatise recommending its use in the treatment of some forms of dropsy having been printed in 1785. Our knowledge of the precise way in which it acts is, however, still extremely imperfect and in the hope of filling in some of the gaps in this I have during the last few years performed a large number of experiments on animals. The main results of these in relation to therapeutics I propose to bring before you today. In regard to the methods used I may say that the contractions of the ventricles and auricles of the dog's heart and the variations in the arterial tension have been recorded graphically, and the forms of those under digitalis and a number of allied drugs compared with those observed before the administration of the drug. In order to shorten the period of observation the drugs were injected intravenously.

The changes seen in the ventricular contraction after the injection of digitalis in therapeutic doses are slowing of the rate of contraction, increased relaxation of the heart during diastole and increased shortening of the cardiac muscle during systole. The ventricles beat more slowly, they are better filled during relaxation and more completely emptied during systole. It must be remarked that this increase in the amount of blood contained during diastole is not uniformly present. Occasionally the heart actually relaxes less after digitalis than before it.

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In the auricles the slowing is the same as in the ventricles; there is here, however, no increase in the relaxation of the heart. The extent of contraction of the auricles varies a good deal. With small doses it is increased, the auricles emptying themselves much more completely into the ventricles than normally, while if large quantities are injected the force of contraction of the auricles is less than normal.

If the amount of blood discharged into the aorta and pulmonary artery be measured, it is found that each beat of the heart throws more blood out when digitalis has been given than it does normally. This is only to be expected from what I have already stated. If the normal heart contains two and one-half ounces of blood during its relaxation and one ounce after it has contracted, while the digitalis heart contains three ounces before contraction and one-half ounce afterwards, the quantity thrown into the aorta by each beat must be much greater in the second case than in the first; that is, the efficiency of the heart beat is increased, the work done by it is much augmented. On the other hand the number of contractions per minute is considerably reduced by digitalis, and the question arose whether the increased work done by each beat is sufficient to compensate for the lessened number of the contractions. In a long series of experiments which were done to decide this question I found that after the administration of digitalis in the quantities used in therapeutics the amount of blood thrown out by the heart per minute is distinctly increased.

In proceeding to analyze these results I found that they were due to two separate and entirely independent mechanisms. Digitalis acts not only on the heart muscle itself but also on the nervous centers in the medulla oblongata, and these latter influence the heart through the cardiac inhibitory nerve, the pnemogastric. It was necessary then to find which of the results were due to the direct action on the heart muscle and which were directly caused by stimulation of the pnemogastric center in the medulla. This can be easily done by dividing the pnemogastric in the neck or by paralyzing it by atropin or other drugs. On injecting digitalis

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after this has been done the heart is not slowed, the ventricle does not relax more in diastole, but it continues to empty itself much more completely during systole. The auricle in the same way continues to beat at its normal rate and its contraction is much more complete than before the injection. The output of the heart is still markedly increased by digitalis, because while the normal heart only half empties itself on contracting, the digitalis heart empties almost every drop of blood it contains. The increased completeness of the contraction then is due to the action of digitalis and its allies on the heart muscle, while the slowing, the more complete relaxation and the lessening in the force of the auricular contractions are due to the action of the medulla.

The increased amount of blood thrown into the aorta, of course, causes a greater pressure in the arteries and an accumulation of blood in them, while the veins come to contain less blood than before the injection. This effect is increased by the fact that the outflow from the arteries into the capillaries is hindered owing to a narrowing of the smaller vessels. This narrowing of the calibre of the smaller arteries is a direct action of digitalis; so that the circulation is changed by digitalis owing to its action on three distinct points, the heart muscle, the pneumogastric center in the medulla and the smaller arteries.

In therapeutics digitalis is used to produce a great variety of changes in the circulation, and I shall therefore devote the rest of this paper to discussing the relation of some of the uses of digitalis in therapeutics to the results attained by animal experiment; and the simplest purpose to which digitalis is put is to slow the heart in fever or in other conditions causing a very rapid pulsation. As I have stated, the slowing produced by digitalis is due to action on the inhibitory centres, and the question therefore arises whether other drugs might not be used which have not the other results of digitalis on the circulation while still slowing the heart. As a matter of fact aconite has exactly the same action on the inhibitory centres as digitalis, and unless the direct action of

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digitalis on the heart and vessels is to be elicited, it seems preferable to use aconite.

The main object for which digitalis is prescribed, however, is to increase the efficiency of the heart in dilatation of the ventricles and in weakness of the heart contraction due to the action of poisons circulating in the blood. Dilatation of the ventricles is seen in its most typical form in valvular incompetency, and here also the action of digitalis is most efficient. The improvement in those cases is undoubtedly due to the increased contraction of the heart muscle. Instead of the imperfect contractions, the oscillations between complete relaxation and a position not even reaching half contraction which occurs in dilatation of the ventricle, we have complete contraction of the heart, a much larger amount of blood is thrown into the aorta, and the stasis in the veins is relieved. The nutrition of the body is improved by the larger quantity of fresh blood circulating through the vessels, and the vessel walls return to their normal condition. The pressure in the lymph spaces increases along with the blood pressure, and the ædematous fluids return to the blood-vessels and are secreted by the kidneys. The action here is entirely due to the increased efficiency of the heart muscle—that is, to the direct action of the heart. The slowing of the heart, instead of aiding in those cases, is rather prejudicial, for it acts against the increased blood flow caused by the direct heart action. The ideal drug here, then, would be one which has the digitalis action on the heart but has no such action on the medulla. We have no such drug at our disposal; all the many substitutes for digitalis which have been proposed possess the same stimulating action on the medulla; they slow the heart rhythm while increasing the efficiency of the individual heart contractions. In the improvement of these cases the action of digitalis on the peripheral vessels also takes little or no part, probably. On the other hand, the contraction of the arteries raises the pressure in the aorta; that is, raises the pressure against which the ventricle has to contract and thus again lessens the beneficial effects of the action on the heart muscle. Some other members of the

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group cause less contraction of the arterioles than digitalis, and may, therefore, be used instead of it. Thus strophanthus, while acting on the heart in the same way as digitalis, causes no such narrowing, and other members may resemble the former more than the latter, although they have not been examined so carefully. In dilatation of the right heart resulting from such pulmonary diseases as emphysema this fact might be made use of. Digitalis is given here to strengthen the right heart and enable it to contract against the resistance offered by the narrowed pulmonary vessels. But at the same time it increases the narrowing and the resistance. Strophanthus, on the other hand, strengthens the heart in the same way as digitalis, but has no effect on the arterioles. It seems, therefore, that strophanthus ought to be preferred to digitalis in this condition, but I am unaware of any clinical work having been done on this point.

Instead of substituting strophanthus for digitalis in order to avoid the constriction of the peripheral arteries, digitalis may be prescribed along with nitro-glycerine, which possesses the property of dilating these. It is a question whether the action of digitalis in slowing the heart might not be avoided by prescribing along with it some drug that would lessen the irritability of the vagus centre or prevent its impulses reaching the heart. Numbers of drugs are known which paralyze the inhibitory nerves, but as yet none of them have been shown to be suitable for the purpose, and this point must be left undecided until further work has been done on the subject.

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DIGITALIS, ITS USE AND ABUSE.

E. BIGHAM, M. D.,
Grand Rapids.

Mr. President, Ladies and Gentlemen of the State Medical Society:

In writing this paper, the writer does not expect to bring forward any new or advanced ideas; but to invite a discussion of a remedy that in his opinion is a much abused drug.

First, to arrive at a legitimate application of this remedy in the peculiar forms of cardiac affections for which it is prescribed, and the beneficial results to be obtained from its administration, it must be given with a comprehension of its physiological action.

Prof. Hare says of its physiological action as follows: First, "Digitalis is apt to irritate mucous membranes which are already slightly out of order, and for this reason should not be given by the mouth in such cases as chronic gastritis and allied states.

NERVOUS SYSTEM.

The action of digitalis upon the nervous system is only manifested when poisonous doses are used. Small toxic doses decrease reflex action by stimulating Setschenow's reflex inhibitory centre in the medulla, and finally by depressing the spinal cord. Convulsions are sometimes seen as a result of the disorder of the circulation at the base of the brain, owing to the disturbed and abortive action of the heart. Finally the motor nerve trunks themselves are destroyed.

CIRCULATION.

Upon the circulatory system digitalis exerts its chief influence. In moderate amounts it increases the pulse force

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and arterial pressure, slows the pulse, and increases the size of the pulse wave. The increase of pulse force is due to a stimulating influence exercised upon the cardiac ganglia and the muscular fibres of the heart; the rise of arterial pressure is caused by this increased pulse force and pulse volume, and by a stimulation of the vasomotor centre and the muscular coats of the blood vessels, whereby a contraction occurs in the walls of the arteries and arterioles. The slow pulse is produced by stimulation of the pneumogastric centre and the peripheral ends of the vagus nerves. The increase in the volume of the pulse is due to this influence on the vagi; for the pneumogastric nerves being stimulated, the diastole of the heart is more full and complete, and occupies a greater length of time. The result of this delay is that the ventricles become thoroughly distended, and on contracting drive a much larger wave of blood through the aorta than is normally sent out. This is important to remember when using the drug in heart disease and other states. While we do not know that the vagi are the trophic nerves of the heart, we have a large amount of evidence in favor of such a view, and it has long been thought that digitalis was not only a heart stimulant but a heart tonic. If the trophic nerves of the heart are stimulated by digitalis, it at once becomes evident that it is a doubly useful remedy. The action of digitalis upon the heart is a double one, in that it creates two opposing forces. By the action on the heart muscle it steadily strives to cause contraction or systole of the ventricles, by the action on the vagi it equally strives to produce diastole or dilatation of these cavities. In medicinal doses neither of these tendencies gets the upper hand, for both are equally excited, so that now increased systole occurs, now increased diastole.

RESPIRATION.

Digitalis has almost no effect on this function, unless in poisonous doses, when the respiration is slowed.

TEMPERATURE.

Upon the normal bodily temperature, digitalis has little or no effect in medicinal doses. In poisonous doses it lowers

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temperature. In fever the drug seems to cause a fall of a small amount with some constancy, but it can rarely be used or any antipyretic influence. *High temperatures prevent digitalis from acting on the circulatory system.*"

This is an important point to remember in its therapeutic use. The cases therefore in which it is the most useful are those in which the left ventricle is unable to drive the blood with sufficient force into the aorta. It is evident this inability may depend on simple weakness of the ventricle without any valvular lesion, or upon valvular lesions, or on a combination of two or more of these conditions. Weakness of the heart may occur in cases of general malnutrition, as anæmia and chlorosis, or in consequence of acute conditions, such as fevers. It is not necessarily accompanied by dilatation; but if it continues for some time, the cavities are apt to dilate. A considerable amount of dilatation may sometimes occur without leading to valvular incompetence. In all such cases of weakness of the heart, either with or without dilatation and functional incompetence of the valves, digitalis is of the greatest possible service. Digitalis is also a vascular diuretic; it increases the watery portion of the urinary secretion by its action on the malpighian tufts. It is thus of value in anasarca of the extremities when due to weak heart action. It is of no value as a vascular diuretic where patient has a strong heart action.

The forms of cardiac affections in which digitalis is of especial value are mitral affections, whether functional or organic. In all forms of valvular disease there is a tendency to the occurence of compensatory hypertrophy, which will enable the heart to do its work in spite of the hindrance caused by the disease. Wherever this is sufficient, so that the circulation is well carried on, cardiac tonics are useless, and likely to do harm. Nor should they be given when compensatory hypertrophy is just beginning to take place. But when compensation is broken they are of great value. With incompetence of the mitral valves we have a damming back, so to speak, of the venous blood on the lungs and a general venous congestion results. And this venous congestion of

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the stomach leads to loss of appetite, of the kidneys to albuminuria, and of the limbs to anasarca. Thus while the venous system is engorged, the arterial system is correspondingly empty; and it is not only the stomach, kidneys and extremities which suffer by the stagnation, but the heart itself. In consequence of this, its action may become not only weak but irregular, and matters go on from bad to worse.

In such conditions digitalis not onty does good by lengthening the diastole and more perfectly filling the ventricle, but also by its tonic action on the heart muscle, strengthens the hearts systole and thus relieves the disproportionate balance between arteral and venous systems. As a result of this we have increased appetite, dimished albuminuria and lessened anasarca. In aortic lesions digitalis is of little or no use as long as we have sufficient compensatory hypertrophy, but may be useful when the hypertrophy has reached its fullest extent and compensation is again becoming broken, as denoted by feeble heart action.

There has been considerable difference of opinion regarding the use of digitalis in aortic regurgitation, some holding it to be useful and unattended with danger, while others think its administration involves great danger. In consideration of this question Dr. Brunton says, "That we must bear in mind that the risks which a patient runs from aortic regurgitation are not the same in all stages of the disease. That while the aortic regurgitation is uncomplicated and the ventricle strong enough to carry on the circulation, the risk to the patient is that of sudden death from syncope. It is easy to understand how this should be the case. When the large aortic valves are healthy the arterial system may be regarded as a large branched tube open only at one end, the capillaries, and through these the blood flows so slowly that there is no risk of syncope from the blood pressure falling too low. In a case of aortic regurgitation, on the contrary, the arterial system is open at both ends, and during diastole the blood is not only running through the capillaries, but it is running backwards into the left ventricle, so that the conditions are favorable for the blood pressure falling so low as

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to induce fatal syncope. It is evident that anything that prolongs the diastole and thus allows more time for the arterial system to empty itself through the capillaries at one end and into the ventricle at the other will increase the risk of syncope, and for this reason digitalis cannot be regarded as free from danger in aortic regurgitation. The danger may be greatly lessened, however, by keeping the patient in a recumbent posture.

In a case of aortic disease where compensatory hypertrophy is broken, or where the hypertrophied heart is becoming enfeebled and dilated so that the mitral valves no longer close the orifice, the most urgent risk to the patient is no longer that of syncope but of pulmonary embarrassment, dropsy, and all the other results of mitral regurgitation. In such cases as well as in those where organic disease of both mitral and aortic valves co-exist we must treat the urgent symptoms and give digitalis. As respects the nature of the cardiac lesion merely, digitalis is useful in dilated heart with incompetence of the mitral, in diseases of the mitral orifice with stenosis or regurgitation, and in dilatation of the right heart with incompetence of the tricuspid. When stenosis of the aorta orifice leads to incompetence and regurgitation of the mitral then digitalis may be used with advantage."

The promiscuous use of digitalis in heart affections should be discountenanced. It seems to me and I appeal not to a vivid imagination but to those opportunities of observation I have chanced upon in my own private practice, and in consultations with other physicians, that this remedy is often employed without any idea of what definite results are to be accomplished from the administration of the same. How frequently do we meet instances in which disturbances consequent upon cardiac affection are to be alleviated; and the prescriber, although cognizant of the fact that a lesion does exist, be it a mitral affection or aortic, or perhaps an irregular heart action or one weak in character, having clapped his ear upon the victim's chest, holds momentary communion with himself and down goes digitalis upon the prescription blank, into the patient's system, and frequently with him "to be resolved to

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earth again and mix forever with the elements." And how often have we seen this drug administered as a cardiac stimulant for weeks at a time in some conditions of continued fever, namely, typhoid and in pulmonary tuberculosis, and here, too, where the nutritive condition of the heart is decidedly below par and its action feeble. Prof. Wm. Osler says of the use of digitalis in aortic lesions as follows: "Digitalis is given to produce a sedative effect and therefore should be given in very small doses and regulated according to its effect on each patient." There is one guide to its use not unimportant to remember; that is, as long as it increases the flow of the urine it is safe to continue its use; also that the time will come when digitalis ceases to have the sustaining effect upon the heart muscle, hence it should be sparingly and carefully used, and the patient should never be allowed to use it continuously. So the necessity of prolonged administration primarily excludes the employment of this drug in appropriate doses. Digitalis, in my opinion, is one of the most dangerous of all the cardiac stimulants in use by the common practitioner. We can state with almost a positive certainty, if a reliable preparation be used, the physiological action of digitalis, and when a reliable preparation is given in reasonable dosage specific effects will of necessity follow. Digitalis stimulates powerfully the cardiac muscle. It also stimulates the primary vaso motor centre in the medulla and causes all the arterioles outside the splenic arcade to become firmly contracted. This alone increases the resistance in front of the heart and greatly augments the work to be accomplished. The heart therefore is compelled to slow down to meet this greater tax imposed upon its muscular powers. The heart is constantly goaded on by the stimulating action of the drug and at the same time it is tightening up the arterioles and increasing the work to be performed. Physiology has taught us on this point that when we tighten up the vessels and produce high arterial tension the blood is driven rapidly through the arterial and capillary system and rushes over into the veins so rapidly that the nutritive interchange is greatly reduced. Clinically the same thing is found equally

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true that if a high tension is developed that cannot be overcome death rapidly follows. The result of this high arterial tension from the digitalis is that the nutrition of the heart muscle is greatly impaired. If at the same time the heart muscle is constantly stimulated to contract with greater power only one thing can follow the decreased nutrition and increased work, and that is muscular degeneration. That digitalis has its appropriate sphere is not denied; that it is a powerful diuretic applicable to many cases demanding a more thorough urinary elimination, and that it is a powerful cardiac stimulant of great value in cases of threatening collapse is also true and that its use in such cases is right and readily conceded. But in no instances may the drug be employed for any considerable length of time in conditions demanding heart stimulation or increased cardiac nutrition and vitality without invariably damaging the heart muscle and often permanently so by instituting in its prolonged use a condition of defective nutrition of the organ and subsequent fatty degeneration. Prof. Bartholow lays down a good general rule for the indications and contraindications of the administration of digitalis as follows: "It is indicated when the action of the heart is rapid and weak and the arterial tension low, and contraindicated when the action of the heart is vigorous and the arterial tension high." Even in ruptured compensation there are some limitations to its use. It cannot be borne at all by some subjects. It is contraindicated in aortic stenosis and may be dangerous in large doses. Where there is mitral insufficiency as well as aortic stenosis digitalis may be given, but only in small doses with a view to its diuretic action. Again Bartholow says "that digitalis is of doubtful utility if not positively contraindicated in fatty heart and consequently in cases of dropsy from dilatation and insufficiency due to fatty degeneration. Again in cases where the arterial tension is already abnormally high, i. e., in cases of contracting kidney where the heart seems unable to drive the blood into the aorta from the abnormally high blood pressure present, digitalis would be contraindicated, for, if given, the blood pressure would be still further increased and the rupture of the

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blood vessel ensue, giving rise to apoplexy. In the annual of the Universal Medical Science of 1891 Dr. A. L. Loomis, dwelling on the use of this drug in cardiac diseases, holds it to be the most reliable of all the so-called heart tonics, yet there is no drug which requires so much skill in its administration. Idiosyncrasy is always an important factor in the question. The drug should be administered as soon as the beginning of heart failure is manifest. The best results are obtained from small doses; for example, one or two drops of the tincture. The ingestion of more digitalis than is required to overcome the insufficiency does positive harm. When the drug is given in doses of more than five to ten drops of the tincture the patient should rest. Hence in early stages the author is accustomed to give a single dose at bed time. When large doses are given for a length of time active exercise becomes dangerous. If the patient is in a water-logged condition and the administration of digitalis increases the quantity of the urine, the drug is doing good and the dose is to be increased if possible up to the point of securing compensations, but if the quantity of urine be diminished its action is not beneficial but positively harmful. In the early stages of fatty degeneration, or in cases of simple weakness of the myocardium from insufficiency of the blood supply or from general muscular debility, digitalis may strengthen the heart; but if the degeneration be due to a fibroid condition the relief will be temporary and the patient ultimately worse than at first. It is important to remember that when the amount of urine falls after increasing under digitalis the administration of the drug should be at once suspended. Serious risk is caused by non-attention to this rule." H. Huchard in discussing the indications for the employment of digitalis says that "it is useless in the condition of compensation, of especial value in transitory asystole with venous stasis from asthenic conditions of the vessels and the heart muscle, harmful in hypertrophy of the heart with increased arterial tension, and harmful in permanent asystole with greatly embarrassed circulation and irremediable fibroid changes of the cardiac muscle." To insure a good result with digitalis in suitable cases it is

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necessary to precede its employment by diminishing the work which the heart has to do. This is to be done by relieving the venous engorgement and œdema by general and local blood-letting, purgatives, paracentesis, punctures of the œdematous limbs, etc. In giving digitalis the condition of the cardiac muscle is of much greater importance than the nature of the valvular lesion.

This drug is classed amongst the so called heart tonics. It is a stimulant and not a depressant. The cases therefore in which it is the most useful are those in which the left ventricle is unable to drive the blood with sufficient force into the aorta.

It should be remembered in giving digitalis that it may make the pulse appear slow, while the heart is really not so slow. In estimating the action of the drug therefore the heart should be auscultated while the pulse is palpated. Sometimes there are twice as many cardiac pulsations as beats of the radial pulse, showing the alternation of a strong and a weak systole, as may be seen by sphygmographic tracings.

In giving digitalis let me reiterate the knowledge of the orifice affected is of secondary importance, only, for the indication of the drug. The therapeutic indication must be found in the cardiac muscle. The situation of the cardiac murmur, its intensity or its absence, furnish no indication for the action of digitalis. It is the state of the heart muscle and the vessels that demand its use. Prof. Hare says in his most valuable work on Materia Medica and Therapeutics in regard to the use of digitalis in heart disease, "that some physicians use heart tonics, such as digitalis, whenever they find a valve diseased, as if to mend a broken valve. Nothing can be more erroneous, for a valve once injured is never regenerated; also it should be an invariable rule with every physician in examining a patient with heart disease to determine whether or not the tissues of the body receive their normal blood supply. If they do not, even though the leak be so small as to escape notice, digitalis or other tonics are to be used; but even if the murmur heard on auscultation is as loud as that of a machine

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shop, and the tissues are not starved, no remedy is needed." Digitalis should be prescribed in decreasing doses to avoid its cumulative effect, and it should not be given in large doses for more than four or five days. With the cumulative action of the drug must be considered the accumulation of doses. As Gubler has said, " digitalis does not penetrate immediately into the organs that it modifies; it may be held in reserve in the organism; its cumulative action is the storing of the drug in an organ (the stomach or intestines). The accumulation of doses is the storing of it in the organism." From this must be deduced the practical conclusion that drugs that have cumulative properties should be given as far as possible in liquid form. While albuminuria is not a positive contraindication to the use of digitalis therefore the drug should be used with caution in these cases in moderate doses for two or three days and its action watched. There are three capital indications for the use of digitalis, viz.: feebleness of cardiac contractility, lowering of arterial and increase of venous tension, and scanty urine co-existing with peripheral œdemas or visceral congestions. As regards the different preparations of digitalis, fluid extract, tincture and infusion, their value of course depends upon what is desired to be accomplished by their administration. If a tonic effect is desired small doses of the freshly prepared tincture of the leaves are the most valuable; if for removing visceral and peripheral œdemas, the freshly prepared infusion is the best in doses of from one to four teaspoonfuls. I do not think that a tincture made from the fluid extract is as a rule reliable and therefore it should not be used. There are still other classes of cases in which digitalis may be used, but the consideration of them must be deferred.

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LOCAL MEDICATION OF THE RESPIRATORY TRACT.

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Grand Rapids.

In this brief paper I shall consider only the different modes of applying medicine to the respiratory tract and shall not enter upon a discussion of the efficiency of any particular drug for any particular disease. It will not be my purpose to state how much or how little can be accomplished by local medication. It will suffice to say that almost every specialist and general practitioner of medicine uses and prescribes to a greater or less extent local medication in diseases of the respiratory tract. The question then is which of the various modes of application are most efficient, convenient and economical. It will be conceded that the object sought is almost always the same, viz: to bring the medicine in contact with the diseased tissue.

The forms of local treatment of the respiratory tract in general use are:

1st. Application by brushes and cotton applicators or mops.

2nd. Insufflation of powders.

3rd. Sprays by atomization of watery solutions.

4. Inhalation of nebulized balsamic and oily medicaments.

I have not mentioned nasal douches because they are so decidedly harmful to the middle ear that they have long since been condemned and are not used.

When for any reason it is desired to apply medicine to a small area, the cotton applicator may be used to advantage

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as it can be renewed for each application and is therefore clean. Brushes should not be used for the reason that they are liable to become contaminated with germs and are therefore dangerous. Medication by insufflation of powders in my judgment has a very limited range of usefulness for the following reasons:

1st. It is impossible to apply them to the trachea and bronchial tubes.

2nd. They are not generally soluble in the mucus secretions of the nose and naso-pharynx and they act as irritants until washed away by the secretions.

3rd. Many of the most useful medicines can not be used in the form of powders. I wish to condemn particularly the use of stearate of zinc which has been so well advertised and with which we have all been supplied by samples. It is entirely insoluble and should never be used in the nose and throat.

Sprays are useful mainly for cleansing the mucous membranes before surgical operations and preparatory to the application of other medicines. I know of but two conditions in which sprays produce beneficial results, viz., chronic atrophic rhinitis and pharyngitis and in pseudo-membranous pharyngitis. Prescribing sprays for frequent use in acute rhinitis is bad practice and many times aggravates and prolongs the inflammatory attack. In chronic hypertrophic conditions frequent spraying does positive harm by keeping the parts moist and macerated. A practice which is very common among specialists and general practitioners and one which is open to criticism is prescribing spray producers and spray solutions for every person who complains of a rhinitis or catarrh. They seldom result in benefit to the patients and cause them useless expense. I find after many years experience that the cases demanding such treatment or which may be benefited by the daily use of sprays are extremely rare. Cocaine solutions no matter with what agents they may be combined give rise to a reaction which aggravates the case and increases nasal stenosis. Cocaine with listerine has become a common domestic remedy for acute rhinitis and cold

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in the head, and many people have contracted the cocaine habit thereby. Cocaine is not in any sense a curative agent and should not be used except as a local anæsthetic, and then only with the greatest of care by a skilled physician.

When sprays are to be used in any case care should be exercised in selecting a spray producer which will atomize perfectly. The air pressure should be not greater than five or ten pounds, for if too much force is used it will denude the mucous membrane of its epithelium. In the most expert hands fine sprays may be made to reach the vocal bands but it is quite impossible to bring them in contact with the trachea and bronchi; therefore, sprays are useless in the treatment of diseases involving the lower air passages.

The following are some of the objections to medication of the respiratory tract by sprays: The medicines are rapidly absorbed and the local effect rendered transitory thereby. The parts are kept soaked and thereby softened and relaxed increasing the tumefaction and stenosis. Too much force is liable to be used and the mucous membrane injured. When sprays are prescribed to be used by the patients themselves they are liable to use them too frequently.

After careful trial of the various modes of applying medicines to the respiratory tract I have been forced to the conclusion that nebulized medicaments are most generally useful and free from the objections attending other forms of treatment, and that they possess the following advantages:

Medicines in a perfect state of nebulization or comminution can be brought in contact with every part of the air passage from the nose to the smallest bronchi, and perhaps carried as far as the air cells. If used with a balsamic or oily menstrum the medicines will adhere longer to the membrane and a more prolonged and continuous effect is produced. The treatment is practically dry and therefore free from the objections urged against sprays. Almost any medicine desired can be used if soluble in alcohol or glycerine.

There are many nebulizers on the market, some of which are very good. Dr. Shurly's globe inhaler answers fairly well, but there are some serious difficulties attending its use:

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1st. It is wasteful inasmuch as a large part of the medicine is condensed in the globe and is not fit to use again.

2nd. The patient exhales directly into the globe, thereby contaminating the medicine which condenses therein.

3rd. The face mask and globe have to be raised and lowered to suit the height of each patient.

4th. The face mask is stationary and thereby hampers the patient in the act of inhaling by restricting the movements of the head.

5th. The contents of the globe must be removed when you wish to use a different medicine.

What I have said of the Shurley globe inhaler will apply to the Beseler globe inhaler and nearly all others. Another objection to these nebulizers is that they require new spray tubes frequently and they are liable to become stopped up and will not work; in other words they are frequently out of order.

I dwell somewhat at length upon the comparative merits of instruments because the more perfect the nebulizer the better will be the results of the treatment. I have used almost every nebulizer on the market with various degrees of satisfaction. The best instrument I have been able to find is the multiple comminuter, invented by Dr. John Robertson of Cincinnati, Ohio, and manufactured by the Pneumachemic Co. of the same place. There are several similar instruments, but I think the multiple comminuter is the most complete and satisfactory. I have at hand an ordinary sized instrument which will illustrate its construction better than any description I could give. I have had constructed a special size comminuter for myself having twelve flasks which enables me to use twelve different mixtures without having to make any change. This instrument has the following advantages over any other I have ever used: It is always ready for use; it does not clog or get out of order; it will work nicely with ten or fifteen drops of solution. Several different solutions can be used at a time and even medicine which can not be mixed in the fluid state on account of chemical incompatibility can be used together in a nebulized state. There is

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no waste of medicines, for what is not used condenses in the small flask where the nebula is produced. On account of the current of air being steadily forced through a long rubber tube, which is attached to the face mask, it is impossible for the exhalations to be carried back into the central flask, therefore the medicines do not become contaminated with germs from the patients. Any two or more preparations can be administered together by turning the stop-cocks above the flasks containing the medicines desired. The medicines are perfectly nebulized and can be easily inhaled into the small bronchial tubes and pulmonary air cells

In the treatment of the middle ear, politzerization can easily be accomplished by compressing the rubber tube attached to the nosepiece until the air pressure is increased to the desired degree, holding the bulbous glass tube in one naris and closing the other by pressure with the finger. You can suddenly remove the pressure from the rubber tubing, and the air will rush into the middle ear and inflate it without danger of rupturing the drum membrane provided the patient is directed to forcibly close the lips, leaving the jaws separated.

I would say in conclusion that whenever it is desired to use medicines in a nebulized state in the treatment of diseases of the respiratory tract this multiple comminuter will be found a very perfect instrument.

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FOREIGN BODIES IN THE LARYNX. REPORT OF A CASE.

E. W. DAVIS, M. D.
Saginaw, W. S.

It is not my purpose at this time to read before this section an exhaustive paper on the subject of foreign bodies in the larnynx, but simply and briefly to report the history and treatment of a case which has occurred in my practice since our last meeting.

The case to me presents some interesting features and so far as I have been able to learn in these particulars we might almost consider them unique.

June 11th 1895, W. R——, aged fifteen months, while sitting on the floor near his mother, by the side of his sister who was eating peanuts, suddenly reached out, picked up a nut and bit off about one fourth of the shuck. His mother noticed what he had done and at once reached down to get it away from him; just then the child raised his head, laughed, and with an inspiration drew the fragment back probably to some point in the larnyx where it possibly rested under the edge of the epiglottis.

The mother says that immediately the child began to breathe croupy, the face grew flushed and afterwards became almost a purple hue, threw his head back and made almost violent attempts to breathe; at the same time the eyes looked glassy and protruding.

She picked the child up and started for the house of the grandfather who lived only a few rods distant in the same block. In the meantime she was calling for assistance. A neighbor hastened to the nearest telephone and summoned

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two physicians. In the meantime several neighbors, who had rushed in to assist, were trying in various ways to remove the obstruction, by holding the child with the head low, slapping him on the back, etc.

One lady who had passed her finger into the pharynx feels confident she felt the outer convex surface of the shuck.

Among those present was a young man with a large hand and long fingers, who with others attempted to render assistance by passing his finger. When he withdrew his finger it was covered with blood at least one half its length.

This probing changed the position of the foreign body, and at once the child began to breathe easier; his face assumed a more natural appearance, and so far as could be seen he was all right.

About this time the physicians arrived and after carefully examining the child so far as they were able could find no indication of any foreign body being lodged either in the larynx or trachea, and gave an opinion that whatever had lodged there had afterwards been expelled or swallowed.

The child continued to breathe all right and afterwards slept for about four hours, when he got up and played about the house, ate supper and seemed apparently as well as ever.

About ten o'clock that evening the father asked me to call and see the child, as he said, "not because he thought there was any real need of it, but being their usual family attendant his wife was anxious for me to see him."

When I reached the house I found the child breathing a little croupy, and after listening to the history gave it as my opinion that the difficulty of breathing at that time was due to œdema which had been caused by injury done to the parts while passing the finger.

The next forenoon, however, I found all the symptoms very much aggravated, and I felt that very soon it would be necessary to perform a tracheotomy and asked for a consultation, when Dr. Fuerbringer was called who agreed with me that an operation must be made at once. We made the necessary preparations as soon as possible, and about two p. m., assisted by Drs. Fuerbringer and Campbell, I per-

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formed tracheotomy which gave the child immediate relief.

After a few days we examined the throat by the aid of the laryngoscope as well as we were able to do in a child fifteen months old. The only thing we could detect was an œdematous inflamed condition of the throat, which was about the same on all sides. This helped to confirm us in our opinion that the real reason of so much œdema had been caused by injury to the parts by those who had ignorantly been proding around with their fingers.

Reasoning on this line, we fully expected that as soon as sufficient time had elapsed this irritation would subside, the swelling disappear and we would then be able to remove the tube. But to our disappointment as time went on the trouble in the larynx continued and the child continued to wear his tube. During this time, however, he ate and slept well and seemed to suffer in no way except from the annoyance of having to wear the tube. I might say that from the very first we were never able to leave the tube out, not even long enough to clean the opening, as the spasm would be so severe as to absolutely shut off the air from passing either through the wound or trachea.

After waiting about four weeks with no apparent change in the condition of affairs, we, (I say we because Dr. Fuerbringer had assisted me through the case) determined to make as careful an examination as possible, which we did assisted by Drs. Bliss, Cornell and Small. This examination consisted of an examination of the larynx by the aid of the laryngoscope as carefully as it was possible; we also administered chloroform and examined the artificial opening and the trachea from below but could find no indication of any foreign body being present, and it was the unanimous opinion of all present that our trouble at that time was due to the swollen condition of the larynx and the spasm, which was very marked; in fact as soon as the child was only partially out from the influence of chloroform the spasm was severe enough to contract the trachea and close the artificial opening so tightly that no air could enter. For this same reason we were never able to leave the tube out long enough to clean it,

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but found it necessary to always be ready with a clean tube the moment the other was withdrawn.

From this time everything went along from day to day without any material change until August 2nd. When I called that morning the mother remarked that there was something wrong or there had been some change in the child's throat. When I examined him I found indications of an accumulation of mucus in the air passage above the insertion of the tube. I removed the inner tube and for the first time since the accident the child expelled air through the fenestra in the tube. At once the child began to choke and cough and expectorated quite a quantity of mucus and pus which I examined and to my surprise found I had that portion of the peanut shuck the child had swallowed on June 11th some fifty-two days before.

From this time the condition of the throat gradually improved and about three weeks later we were able to remove the tube, the child having worn it seventy-five days in all.

After the tube was finally removed the wound closed and healed with great rapidity, no dressing or other treatment being necessary.

In a general way there is nothing remarkable about this case, but there are a few interesting points:

1st. Age of the patient.

2nd. Absence of symptoms for so long a period when the foreigh body must have been lodged in the larynx.

3d. The length of time that elapsed before suppuration was sufficient to dislodge it.

When we think of traechotomy as an operation it seems a very simple procedure. If, however, you have to deal with a child fifteen months old, it is not an easy task, and to those who have never had such a patient I doubt if they have ever really considered how small the trachea really is, and text books are practically silent on the subject; statistics, however, prove that a majority of patients under two years do not recover from this operation.

I have never been able to satisfy myself why this child should have been absolutely free from symptoms so soon

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after the obstruction was pushed aside by the finger, and we have the unmistakable proof that there were no symptoms as two physicians were present and examined him carefnlly, and for at least eight hours thereafter none developed.

Is it not remarkable that with so much local injury and the great amount of swelling which developed, together with the foreign body being present, that so long a time should have elapsed before suppuration was sufficient to dislodge the shuck ?

The uniform swelling on all sides of the larynx and the rapidity with which it developed will easily account for our being unable to discover its presence, as the œdema was sufficient to completely cover it.

I believe that if the finger had been kept from the larynx a few moments longer, until the physicians arrived, the obstruction would have been easily removed and no trouble followed.

But when we consider the small size of the child's throat, being probed with a large finger and no doubt consid erable force being applied, we must expect just what did happen, great injury to the parts; and this injury was the principal cause of so much swelling and inflammation and consequently the long time following which was necessary for it to heal.

When we consider these facts in this case, are we not justified in saying that our trouble in this case was two foreign bodies instead of one; first, the peanut shuck; second, the finger; and of the two which did the greater amount of damage; and which of the two was really to blame for the trouble that afterwards made a tracheotomy necessary ?

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THE CARE OF CASES AFTER LABOR.

J. G. LYNDS, M. D.,
Ann Arbor.

I would like, were it possible, to determine what is the safest and simplest plan of caring for puerperal cases, that is to say, the treatment under which the largest number of cases make a rapid and complete recovery. Perhaps some here are ready to answer this, and I trust that all here will tell us their methods and results, and if they have a method that prevents complications, such as we will consider, arising under the many unfavorable conditions we are called upon to care for in these cases, he will certainly confer a boon upon many of us by imparting to us his ways.

At the present time I know of no more frequent cause for invalidism in women than the complications of labor and the puerperal state, and were our methods of caring for these conditions anything near as perfect as they should be I cannot think this would be the case.

If you but stop a moment and think of the number of cases consulting physicians with displacements, lacerations, subinvoluted uteri and inflammatory troubles of the uterus, tubes or ovaries, together with the sympathetic or reflex disturbances caused by them which have their origin during the puerperal state, and then consider the number which prefer to go on suffering rather than submit to an examination and treatment, you must I think agree with me that the number is much larger than it should be. True the number of deaths occurring during the few weeks following labor is not great; but if you add to these the deaths occurring subsequently from some of these complications, and I consider all these

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conditions I have mentioned complications when they result from labor, then add those who die from operations for the relief of some of these conditions, probably the result will somewhat surprise you. There should be and it appears to me must be a way to diminish this vast throng, and if it can be done it is by adopting methods different from those generally carried out at present.

Few practioners indeed there be who attend labor cases at all but will find some of their cases suffering from some of these complications providing they look for them. There may be some who claim such happy results, but the most of them will prove like one who attended the University clinic some time ago when we presented several cases with lacerations of the perineum. He stated he had attended several hundred confinement cases and had never had a cases of laceration of the perineum. A short time after that one who had been his patient presented herself for examination with as complete a laceration as it was possible for to have and be incomplete. There was a small band of the sphincter muscle left, but a large rectocele and cystocele turned out through the vulva, and the uterus was prolapsed, enlarged and retroverted. I learned from him subsequently that the only way he examined for lacerations was by introducing a finger.

Many practitioners use every care and precaution in attending their cases before and during labor, but as soon as the child and placenta are delivered turn the case over to a *nurse*, a self trained one perhaps who has studied Dr. Chase's receipt book or some other of equal value on nursing, but is fully convinced she knows all there is to know about it and is ever ready to give the doctors advice. You have all met her I have no doubt, and it is unnecessary for me to describe her further. I shall not soon forget an experience I had with one such soon after I graduated. One who was considered by the laity "the best for such cases" nursed for me. I was very careful to give her explicit directions regarding the treatment I wished carried out and the use of soap, water and antiseptics for herself and the patient. The second day after labor I noticed her, after changing the baby and wiping

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up slops on the floor, without the least show of cleansing her hands go to change the mother. I called her out, thinking it best to say nothing before the patient, and told her my opinion of that way of carrying out my instructions. She, immediately after I had gone, however, told the patient what I had called her out for and also told her I knew very little about such cases, having graduated but a few months before, while she had nursed and also attended cases without the aid of a doctor before I was born and had seen at least fifty cases to my one. Perhaps the worst part of all this was the truth of it, for while my theoretical knowledge was fair my practical knowledge was very meagre. It was my first case. The first case I had ever seen in fact, for before that time students did not have the opportunity at the University to see and study cases as they do at present. Only a few of our class had seen a case of labor when we graduated. Now I am glad to say all have ample opportunity.

The next patient that nurse nursed for me had severe septic infection; chill, high fever and putrid discharge, which were cut short, however, by curetting and washing out the uterus. I ascertained she had been permitting the patient to pass the douche nozzle herself without any antiseptic or aseptic precautions whatever. The next and last patient she nursed for me died six or seven days after labor from sepsis. Perhaps she was not at fault here, but I preferred to take my chances without her thereafter and would not attend cases if she was going to nurse them. I then came to the conclusion, and have ever since clung to it, that these old nurses, or midwives, or whatever you choose to call them, whose only knowledge is their experience and who think these " new fangled ideas of antiseptics and such things are all nonsense," are about the worst curse that can be inflicted on a patient or a doctor, and especially a young doctor; and are a positive danger to the community in which they exist. I would much rather have a person who has never seen a paturient case who will follow instructions, for I know my results will be better.

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Recently there was reported in the " Press and Circutor " a case occurring in Sheffield, Eng., that illustrates the dangers of these people. A midwife attended a case that had puerperal fever. She was warned against going from there to other cases, but paid no attention to the warning, went from there directly to another case, who very promptly had fever and died. This case will probably be somewhat of a warning to others of the same class, however, as well as some of the laity, as she has been committed for manslaughter.

Within the last few weeks cases have been reported from Kalamazoo and Chicago where midwives hailing under the names of christian science or something just as bad, have resulted seriously. The prosecution of these offenders, so far as I know, has not resulted in convicting them of any crime, but nevertheless has not been without its good results; and I feel that Dr. Pierce, of Kalamazoo, and her colleagues, if she had any, deserve great credit and the thanks of the profession for carrying on the prosecution and bringing the matter before the public; for if there is any way we can bring the people to realize the dangers they are subjecting themselves to when they put themselves in the hands of such incompetent people, whether they call themselves doctors, midwives, nurses or christian scientists, it is by such procedure. It would be well if every physician would consider it his bounden duty to report and prosecute in such a way as to bring the facts before the public as much as possible, all such cases coming under their observation, not so much to procure the conviction of the offenders, although that, no doubt, would have a salutory effect, as to educate the people to the necessity of the case. Once this were accomplished, a large per cent. of the class of cases we are considering would be prevented.

There are many methods in vogue for caring for patients after labor. It is not so when caring for patients in labor. Then practically all agree that asepsis, or antisepsis, if indicated, is the proper thing, and in their way attempt to carry it out. Labor once over, however, there is often an utter disregard for these precautions. Some time ago I corres-

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ponded with a number of physicians in different parts of this and adjoining states regarding the prevalent methods, and will mention some of the features most common, not to criticise them at all, but for careful consideration as to which is best. Practically all use aseptic or antiseptic measures during labor. The majority examine for lacerations. Some never find any because they never examine properly. Deep lacerations are usually repaired, but slight ones are not. Some repair immediately after labor; some one, two or three days later. Some wash out the uterus and vagina after each labor, more after instrumental or manual delivery only. It seems to be the common practice to use vaginal douches, beginning within two or three days after labor, the douche being water supposed to be sterilized or some antiseptic solution, and given in nine out of ten cases by those who could not possibly give it aseptically.

The dressings for the vulva are by no means always sterilized. If the patient gets along until the ninth day she is allowed to sit up and is discharged, some always permitting their patients to get up on the ninth day regardless of their condition. What results are obtained it is very difficult to ascertain. Not very many die, and all who are able to get around in a couple of weeks are discharged as well, many of them, however, to become patients of gynæcologists in a short time. In an experience of eight years in the gynæcological clinic at the University of Michigan, during which time I have seen between fifteen hundred and two thousand cases, I am sure I am not overstating facts when I say two-thirds of the number were suffering from ailments arising during puerperal state, three-fourths of which should have been prevented by proper care.

The method I follow as nearly as possible is, before labor, if it comes to my knowledge that the patient has a purulent or infective discharge, to cleanse the vagina thoroughly every day for some time before labor is expected. In the absence of such discharge, no treatment.

At the beginning of labor the external genitals are thoroughly cleansed and the hair clipped off around the vulva. Labor

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is conducted with all aseptic precautions. If there is occasion for passing the finger, hand or instrument into the uterus the vagina is first cleansed, otherwise the vagina is left undisturbed.

After labor is completed two great dangers threaten the patient, viz., hemorrhage and septic infection. Firm tonic contraction of the uterus prevents hemorrhage and to a certain degree is prophylactic against infection. It prevents the formation of large clots in the uterus or uterine sinuses which when present are likely to undergo putrefactive changes, and by preventing hemorrhage keeps the patient in the best possible condition to resist septic invasion. I believe quinine increases the resistive power of a patient to some extent and therefore give three grains two or three times daily for the first week. To keep the uterus well contracted I give ergot for the first two or three days.

After firm contraction of the uterus is secured it is well to examine the vulva and see what damage has been done there and in the vagina. In order to ascertain this the parts must be exposed so they can be inspected in a good light, otherwise not only slight but deep lacerations are likely to be overlooked. Thorough coaptation of any rent should be secured, using sterilized silk for the perineum and catgut for superficial tears. If done immediately after labor union generally takes place in 24 or 36 hours sufficiently to close the doors here against infection. Nearly all the cases of general infection I have seen have, so far as it was possible to ascertain, become infected through tears about the vulva or in the vagina.

The question of douches after labor is an important one. My former practice was to give them. It is the treatment I was taught and I tried to carry it out even though quite a number of my cases had rise of temperature and other symptoms of mild infection. These cases occurred occasionally when I had well trained nurses but more often when I had ill trained ones. I had some cases as most every physician has where the surroundings and nursing were such that to order douches would be to tempt providence. These I left alone after a slight experience and was surprised to find they

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recovered with fewer complications than those with the best of care with douches. Two years ago I stopped douching my patients except for cause, and since doing so have not had nearly so many cases with symptoms of infection. I have cases occasionally yet I am willing but sorry to have to cōnfess.

Hospital statistics of a large number of cases treated with and an equally large number without douches show a larger per cent. of fever free cases among those without them. If there is any place they can be given properly, it must be in a hospital by properly trained nurses, and if harmful there, must be much more so when left in the hands of the ordinary obstetric nurse.

The external parts should be washed often with an antiseptic lotion, and aseptic pads, best and easiest made by rolling absorbent cotton in gauze and baking, applied as often as they become soiled.

The excretory organs should be kept active, the bowels moved on the day after labor and each succeeding day. An overloading of the system with effete matter increases the susceptibility to infection and may even be the cause of infection in some cases. Her diet should be light and easily digested for the first two or three days when a general diet may be allowed. When she has recovered sufficiently to set up she should be allowed to do so, whether it be the fifth, ninth, ninteenth or twenty-ninth day. The practice of keeping a patient on her back until the ninth day and then allowing her to be up and do as she pleases is one productive of much harm. Before the patient is discharged she should receive a careful examination and the condition of her pelvic organs ascertained. If any abnormal condition exists the patient should be advised of it and the proper treatment suggested.

No one can prevent some of the abnormalities that are liable to occur, but most any one can correct those likely to occur by a little care at this time and save his patient both suffering and dollars. Abnormal positions of the uterus, unless they be due to destruction of the perineum or inflammatory process,

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are now corrected with ease. A few months later it is a very different matter. A subinvoluted uterus is much more amenable to treatment now than ever again.

Inflammatory conditions can in the majority of instances be cut short or greatly modified, while if the cervix has been lacerated it is the most favorable time to repair it and thereby prevent the many secondary pathological conditions that follow it. If for any reason a ruptured perineum has failed to be properly restored, the sooner this is done the better perineum will result and the more nearly the patient be restored to perfect health.

Comparatively few physicians make this examination and yet it is a very important matter. Many patients can be saved years of suffering and invalidism and quite a number can be saved from dangerous and what proves to some to be fatal operations. The physician who has the courage and skill to rescue those sufferers from pelvic diseases by serious and dangerous operations when other means have failed deserves all the glory and remuneration he generally receives, but does he as rightly deserve either those or the gratitude of the patient as the one who by careful and conscientious attendance prevents the necessity of such operations.

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PUERPERAL ECLAMPSIA. REPORT OF EIGHT CASES.

COLLINS H. JOHNSTON, M. D.,
Grand Rapids.

It is not my intention this evening to enter into a discussion of the etiology, pathology or prophylactic treatment of puerperal eclampsia, but simply to report briefly eight cases which have occurred in my practice and to make a few remarks upon the treatment of such cases.

CASE 1 was a multipara, aged 42 years, with a history of kidney disease and a so-called abscess of the lung of several years' standing. Her labor was of short duration and unattended by any complication. She had been under my care for about a month for albuminuria and dropsy, but I was so pleased that no convulsions occurred *during* the labor that I paid no attention to the severe headache which the patient complained of at its termination. As it was my first case of confinement, thirteen years ago, and the second case I had ever seen, perhaps my stupidity was somewhat excusable. Three hours later I found her in the third convulsion. The treatment consisted in the administration of chloroform, morphia, bromide and chloral. She had but one convulsion after my arrival, but this is not strange when it is considered that she received one grain of morphia hypodermically, thirty grains of bromide and twenty grains of chloral within the space of one-half hour. She did not regain consciousness and died in thirty-six hours. The infant survived.

CASE 2 was a vigorous primipara, 18 years of age, in the ninth month of pregnancy. She began having spasms at 6 A. M. and was unconscious at 9 P. M. when I first saw her.

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I gave her bromide and chloral every two hours and several doses of compound jalap powder which produced several watery stools before morning. She also received pilocarpine hypodermically and was wrapped up in hot wet sheets every fifteen minutes until free perspiration was excited. Towards morning her condition improved, and I inserted a catheter between the uterus and membranes to induce labor. On returning at noon I found her general condition about the same. Uterine contractions had begun, so I ruptured the membranes, and at 5 o'clock delivered a dead child with forceps. Soon after this she regained consciousness sufficiently to speak when addressed, but her improvement was temporary and she died in forty-eight hours. Had I treated this woman surgically instead of medically, and delivered her soon after I first saw her, I have no doubt her life could have been saved.

CASE 3 was also a primipara, aged 18 years, who began having convulsions at 2 A. M., and was unconscious at 11:15 A. M., when I was called to see her. I gave her one-half grain of morphia hyperdermically, and as she was very stout and plethoric removed eight ounces of blood from the median cephalic vein. At 11:25 she had another spasm. At 11:30 I injected three ounces each of chloral and bromide into the rectum and wrapped her in sheets to excite perspiration. At 12:20 she had another spasm. At 2:30 I repeated the enema of chloral potassium and bromide, and the os being partly dilated ruptured the membranes and extracted the child, dead, with forceps. This patient was so insensible that she did not notice the operation, and died at 4 o'clock. This case was hopeless when I first saw her.

CASE 4 was a primpara, aged 18 years, in the ninth month. She awoke at 2 o'clock at night with a violent headache, which increased in severity until 3 P. M., when I was called. Her face and extremities were much bloated, and while talking to me she was seized with a convulsion. Upon regaining consciousness at 3:10 she was given thirty grains each of chloral and bromide of potash and one-eighth grain of elaterium. At 4:10 I repeated the chloral and bromide, and at

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4:40 gave her one-eighth grain pilocarpine hypodermically, and a hot air bath, which measures were followed by profuse perspiration. Her head now felt much better. I ordered a continuance of the chloral and bromide every three or four hours and also several one-half grain powders of calomel. The next morning she was quite comfortable. Her bowels had moved twice and her headache had disappeared. She was directed to drink freely of cream of tartar lemonade, to take enough compound jalap powder to procure one or two fluid evacuations a day, and to take digitalis until the amount of urine passed a day approached the normal. At the end of a week I attended her in labor which was normal in every respect. The baby was well developed and healthy. Convalescence was uninterruped.

CASE 5 was a multipara, aged twenty years. She had been in labor several hours, and had one convulsion a few minutes before I saw her. I put her under chloroform and as the child's head was low and the os well dilated I ruptured the membranes. As the pains continued strong forceps were not resorted to, and a healthy baby was soon born, the mother being kept slightly under the influence of the anaesthetic. The puerperium was uneventful.

CASE 6 was a multipara, aged 28 years. Labor began at six A. M., soon after which I was called. At 8:30 the baby was born without any complication. At half past twelve, without any premonitory symptoms, she was seized with convulsions and was unconscious when I arrived on the scene at one o'clock. I gave the patient $\frac{1}{3}$ grain morphia hypodermically, and as she was a very plethoric woman and had lost but little blood during labor I thought venesection was indicated and called Dr. Lupinski to assist me. I then put the patient under chloroform while the doctor opened the median cephatic vein and removed one pint of blood. The patient recovered consciousness the following morning and made a rapid recovery, my last call being made on the fourth day.

CASE 7 was a primipara, aged twenty four years, seen in consultation with Dr. Marvin. She had been in labor

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several hours and had one convulsion a few minutes before I saw her. We gave her one fourth grain of morphia hypodermically, which was followed in ten minutes by another spasm. We then put her under chloroform and on internal examination found that the child's head had passed the pelvic inlet. The sagittal suture was in the right oblique diameter with the small fontanelle to the front. The cervix was dilated to the size of the palm of the hand. I therefore ruptured the membranes and with some difficulty delivered the child with forceps. It was deeply asphyxiated and was resuscitated only after several minutes use of hot and cold baths and artificial respiration. It remained quite feeble and died on the eighth day. The mother made a rapid recovery.

CASE 8 was a multipara, aged twenty four years whom I saw in consultation with Dr. Penwarden. She had her first convulsion at one o'clock P. M., and another fifteen or twenty minutes later, after which she remained unconscious until after delivery. We gave her one-fourth grain of morphia hypodermically, and at three o'clock put her under the influence of chloroform: pulse 100; temperature not taken. External examination showed that the fundus was midway between the umbilicus and the pit of the stomach; the child's back was to the right, small parts to the left and forwards; head moveable over the pelvic inlet; fœtal heart beat midway between the umbilicus and anterior superior spine of the ilium and 140 to the minute.

After careful cleansing and disinfection of our hands and the external genitals of the patient, she was examined internally for the first time. The vagina was wide, mucous membrane smooth, cervix high and open to the finger, water not escaped, head moveable above the pelvic brim, sagittal suture almost transverse, small fontanelle to the right and somewhat posterior, large fontanelle not felt. Diagnosis: End of ninth month of pregnancy, right occipito-posterior position, labor not yet began. The patient's husband stated that she was expecting labor to set in at any time. It was decided that her interests demanded immediate delivery, and that the

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only way to accomplish this with safety to the mother was by performing eraniotomy. After sterlizing the instruments by boiling them fifteen minutes in soda solution, the vulva was shaved and the external genitals and surrounding parts again washed and disinfected. Great care was taken that no water entered the vagina, and no vaginal douche of any kind was used. While the head of the child was firmly pressed against the pelvic brim through the abdominal walls by Dr. Penwarden I passed the perforator through the posterior fontanelle and moved it about freely to break up and remove the brain mass as thoroughly as possible, and thus allow of complete collapse of the eremal wall. The smaller blade of Braun's eranioclast was then introduced into the perforated skull and the larger placed over the occiput. To avoid lacerating the cervix an incision was made into it with scissors, extending about half way to the vaginal junction. The head was then slowly and without much difficulty extracted. The placenta was expressed in about twenty minutes and two syringefuls of ergot given hypodermically. The uterus contracted well and no hemorrhage followed the operation. The cervical canal and vaginal vault were irrigated with a small amount of water to remove a little loose brain substance, but nothing else in the nature of a vaginal douche was used at any time. The after treatment of the case was conducted by Dr. Penwarden, and consisted mainly in the use of salts and chloral. The patient made an uninterrupted recovery. The lochia were normal in amount and free from odor. The highest temperature was 100°. This was reached on the third or fourth day when the patient was troubled some with mammary turgescence. The evening temperature did not exceed 99° at any time.

Puerperal eclampsia is a dangerous disease, whose mortality is variously estimated at from twenty to forty per cent for the mothers and from fifty to seventy-seven per cent for the children. The prognosis is worse in multiparæ than in primiparæ and is most unfavorable when the convulsions occur in the last month of pregnancy before the onset of

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labor. Some of these cases die undelivered. In the great majority of cases, however, the convulsions begin during labor, and the earlier they occur the worse the prognosis. The statistics of LOHLEIN show that of eighty-three cases in which the first spasm occurred before or during the first stage of labor forty and one-half per cent died. Of fifteen cases where the first stage was completed before the onset of convulsions only one died. Eclampsia which develops first in childbed usually runs a favorable course.

When these facts are considered, and also that after operative emptying of the uterus under deep narcosis, the convulsions cease in ninety-three per cent of the cases, I am warranted in asserting that, as a rule, the principal indication in puerperal eclampsia is to deliver the woman. If this can be done with safety to the child well and good. If not, for the sake of the mother we are justified in utterly disregarding the child the same as we do in placenta previa.

One must not, of course, follow this rule blindly, as some infants would thereby be needlessly sacrificed. One must individualize to a certain extent. The heart of the woman is the best index of her condition. If the pulse is but seventy or eighty, and the patient conscious between the spasms, the case may often be conducted to a favorable termination with the aid of chloroform, morphia, chloral, etc., as was done in my fourth case. With a pulse of one hundred, active treatment is necessary. Do not put off the delivery for hour after hour and waste time with anodynes, but proceed to deliver the woman as soon as possible. When the pulse is 120 to 140 the prognosis is bad whatever the treatment.

The indications therefore in a case of puerperal eclampsia are:

(1) To deliver the woman as speedily as possible. The obstetrician must be the judge of the particular procedure to employ in a given case. Barnes' bags, the colpeurynter, manual dilatation of the cervix, Duhrssen's multiple incisions, forceps, version, perforation and Cæsarean section have each their sphere of usefulness. Symphysiotomy is not to be

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thought of in any case. Personally I do not believe it would be right to subject a young or middle-aged eclamptic with a normal pelvis to the dangers of a Cæsarean section, as, with good health, she would probably soon again become pregnant, when, with or without suitable prophylactic treatment, the convulsions would not be likely to recur. KALTENBACH, however, believes that cesarean section early in eclampsia is preferable to the forcible extraction of a child after deep incisions through the cervix and vaginal vault.

(2) To suppress the attacks with chloroform, large doses of morphia hypodermically or chloral by the rectum. ZWEIFEL gave chloroform continuously for twelve hours in one case which terminated in recovery. To get the best results from chloroform it should be given until delivery is accomplished or the child is dead. In the latter case, with an imperfectly dilated os, craniotomy should be performed. LEOPOLD and others object to the employment of chloroform in eclampsia on the ground that it adds to the blood intoxication already present and leads to acute fatty degeneration of the heart. On account of this depressing effect upon the circulation ZWEIFEL uses ether. VEIT has given as much as thirty grains of morphia subcutaneously within seven hours in a successful case; and WINCKEL has used one-half ounce of chloral per rectum within twenty-four hours. But these drugs must be used very carefully. KALTENBACH has seen one and one-fifth grains of morphia distributed over six hours produce symptoms of narcotic poisoning, nor was a fatal termination of the case averted.

(3) Stimulating the skin to activity by warm baths of 100° to 110° of twenty minutes' duration, and the bowels by drastic cathartics as compound jalap powder or elaterium.

I wish to call attention, in closing, to the great necessity of asepticism in treating puerperal eclampsia. These cases are particularly prone to septic infection on account of the larger number of internal examinations usually made to determine the progress of the birth, and because of the severe lacerations which often follow the accouchment force used to

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hasten delivery. No internal examination should be made before disinfecting thoroughly the external genitals of the woman and the hands of the obstetrican, and no vaginal douches of any kind should be used. The vaginal secretion of a pregnant woman is a powerful antiseptic and disinfective agent. The employment of antiseptic vaginal injections, before or during labor, with a view of sterilizing the vagina, is not only useless but positively harmful.

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EMBRYONIC MISCARRIAGE.

J. R. DODGE, M. D.,
Hudson.

In selecting this topic for my paper it is not because I have anything new or startling to present, nor because I have had more than ordinary success in the management of cases of this kind; it is merely with a desire to provoke a discussion of a subject which I fear does not receive the attention it merits, and is not as well understood as it should be by the average practitioner.

The tendency of the medical profession at this time is toward the new and sensational, and any paper read before a body of this kind which does not recognize this fact and follow along in this line is in danger of being regarded as unorthodox. This craze which has gone to a dangerous extent was openly rebuked by the American Medical Association at its last meeting at Atlanta, and in the language of Dr. Senn of Chicago, now president of the society, "the time has come to call a halt." This protest was embodied in the opening address of Dr. Beverly Cole of California, and supplemented by a resolution offered by Dr. Maclean of Detroit and unanimously adopted by the association. I had the honor as well as pleasure of attending this meeting, and I know that the sentiment of the members present was that of more conservatism in the practice of the healing art. Being imbued with this feeling I feel emboldened in bringing forward at this time a matter for your consideration, though plain and everyday in its occurrence yet one of considerable importance, for there is nothing within the daily routine of our practice that creates so much consternation in the heart of the young practitioner, and oftentimes so much perplexity even to the

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older and more experienced, than an alarming case of hemorrhage associated with miscarriage. The patient is usually more or less exhausted from great losses of blood before the physician is called in, in fact the doctor is not called at all until the friends have become thoroughly alarmed; he is expected to act and that promptly for the relief of his patient, and all eyes are upon him; if he wavers or hesitates it is quickly observed, and confidence—that jewel which every conscientious physician covets—is weakened or lost. On the other hand if the doctor is fully equipped for any emergency and has confidence in his own resources and his ability to act is clearly demonstrated, he will save his patient from further exhaustion and place himself not only in the position of mastery, but in one of security so far as his own reputation is concerned.

Miscarriage applies to those cases where the uterine product is thrown off before viability; this period in law is fixed at six months, but as a matter of fact it is somewhat longer, seven months being about the average. There seems to be three clearly defined stages of miscarriage prior to the seventh month, each marked by characteristics peculiar to that period of gestation. These periods have been recognized by a number of modern writers and are named in their order as follows: First, ovular, ending with the first month; second, embryonic, ending with the third; and third, fœtal, including the remaining period of gestation down to the stage of viability. Ovular miscarriage is, as a rule, of slight consequence and attended with no symptoms of special alarm, rarely disqualifying the patient for her ordinary duties. I can recall no case during my twenty-five years experience where active interference was called for, or where injurious symptoms, either inflammatory or otherwise, developed. The embryo during this period is without definite form, and when removed from its amniotic enclosure is almost microscopic in size. As a rule this ovum is thrown off during the menstrual epoch, and aside from a somewhat unusual flow and increased pain, might pass unnoticed and even unknown.

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Embryonic miscarriage with which this paper has especially to do is a different affair entirely, either from the preceding period or the one following. It is the period of greatest danger to the patient, and the one that oftentimes puts the practitioner at his wits end. It would be better, in my opinion, to extend this period so as to include the whole of the fourth month, for not until after that point of gestation do the peculiarities which mark the third or fœtal stage of miscarriage really begin to exist.

Fœtal miscarriage in the language of Dr. Charpentier "is a labor in miniature, with placenta fully formed and the ovum definite in structure." As miscarriage at this point of pregnancy has the characteristics of labor at term, it requires no special treatment. Any physician who has had extensive experience in the management of miscarriages and has been observant must have been impressed by the regularity with which these peculiarities occur during the periods of gestation, and oftentimes requiring a wise discrimination in their treatment.

The period of greatest frequency of abortion is undoubtedly by all odds between the second and fourth months. In my own practice the great majority has occurred at or during the third month. I think that about four out of five have occured at this point.

Jaquemier on the other hand declares with Madame La-Chapple that the sixth month is as critical a period as the earlier months of pregnancy. I have not been able to verify this in my practice at least.

The apparent reason for the earlier miscarriages is accounted for by the fact that prior to the third month the placenta is quite undeveloped and its uterine adhesions comparatively slight, extravasations occuring from mechanical causes, and the periodic congestions that recur quite regularly during the early months disturb more or less the fixity of the ovum, and it is quite liable to premature expulsion. Hereditary influence is often an exciting factor, and quite a percentage of miscarriages are due to this circumstance alone, notably the syphilitic taint on the part of either parent. Rachitis and

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scrofulosis are potent causes and lead frequently to an early arrest of development. Women with profuse monthly flows are prone to miscarry during the periodic effort, and women nearing the close of menstrual activity are exceedingly liable to miscarry at about the third month, and it is this class of cases as a rule that furnish the most abundant hemorrhages and cause us the most trouble, as the uterus at this time of life is flaccid and far less disposed to contract. In all the realm of nature nowhere does habit assert itself more regularly and persistently than in the matter of miscarriage. A woman who has aborted once from whatever cause is quite likely to do so again at the same period in subsequent gestations. I have by enjoining absolute quiet in the recumbent position, continued from the close of the first to the middle of the fourth month, succeeded in carrying quite a number over the critical period and thereafter the habits seemed to be broken. I now recall one case in particular where the patient aborted regularly at the third month for three consecutive times. The fourth time she was carried over the danger period by absolute rest in the recumbent position beginning with the second month and continued to the close of the fifth. My books show that since that time I have delivered her of six living children all at full term. The direct and mechanical causes of miscarriage are omitted as not deemed proper to discuss at this time.

When summoned to the bedside of a pregnant woman suffering from pains about the back and loins attended with hemorrhage the opinion is apt to be unqualified that the patient is suffering a miscarriage. A little caution here is sometimes a good thing, for cases of this kind frequently rally and go on to term. I can attest the truth of this in numerous instances, and in several to my chagrin. Dr. Bedford says: "I have known women to loose immense quantities of blood in a threatened abortion and to be apparently moribund from exsanguification, and yet they have rallied and gone on the full term." A case of this kind occurred in my practice last summer. Mrs. B. at the third and a half month was attacked with recurrent pains attended with a

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most profuse hemorrhage; the pains seemed to increase in their expulsory effect and a great quantity of clots were thrown off. This state of things continued for several hours, and I informed the husband that nothing would prevent a miscarriage. I was about to apply a tampon when to my surprise the pains and hemorrhage suddenly ceased. This case went to full term, and I delivered her of a puny child weighing three pounds. This child is still living, but very small and develops slowly. This was the woman referred to in another part of this paper as having aborted three consecutive times. Instances of this kind occur in the practice of all physicians and should teach us that unless the ovum is actually extruding from the dilated uterus, under the influence of regular labor pains, we should not be too positive in our prognosis nor refrain from using every known means to quiet our patient and carry her on to the conclusion of pregnancy. The doctrine would seem to be that while pain and hemorrhage are the usual attendants or precursors of miscarriage, they are not by any means necessarily so. Many women menstruate regularly every month attended with more or less paroxysmal pains during the whole course of their gestation, and yet reach the end safely so far as mother and child are concerned.

Having exhausted all the resources at our command, in our efforts to arrest the threatening symptoms, and it being a foregone conclusion that a miscarriage is certain, our plain duty now is to relieve our patient as quickly as possible consistent with safety, and it is to the management of these cases that I desire especially to call your attention, and earnestly ask your wise consideration. I have before stated that the embryonic cases are as a rule the ones that give us most concern and the ones of greatest danger to the patient. At the latter part of this period, where miscarriage is most likely to occur, the ovum is quite firmly anchored to the mucous membrane of the uterus, which in turn has sent solid epithelial prolongations between the villi of the chorion, thus intimately attaching the ovum to the uterine walls. At this time the afterbirth is well along in its formation and may be

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said to form almost a constituant part of the uterus itself. The decidua, which is a uterine product, parts from its attachments with difficulty, sometimes most provokingly and tediously slow. During this separation the hemorrhage usually intermitting in character, keeps up a constant drain and unless controlled, small pulse, cold extremities and syncope supervene, thus declaring the dangerous extent. to which the process has gone. This condition of things, with no immediate prospect of the expulsion of the ovum may continue until the patient is actually moribund. It is not well to delay interference until this exhausted state of the system declares itself; indeed it is positively dangerous to do so. Sometimes we find this condition of things when we arrive upon the scene. To content ourselves with treating such cases expectantly and trusting too much to nature is a criminal neglect of duty. During the first years of my practice I am frank to admit, I was too much inclined to treat my abortion cases in that manner. Inexperience and an indescribable sense of fear are my only defense and here is the proper place to make "open confession."

For the last ten or fifteen years I have pursued a very different line of treatment and I have rarely had any trouble from losses of blood, either during the expulsion of the fœtus or the separation and removal of the placenta. I have come to look upon the tampon as the thing, and the only reliable method of arresting and controlling hemorrhage in miscarriage where the os uteri is undilated. The writers usually place the tampon second or third in the list of important agents to be relied upon in controlling these hemorrhages; but were I to write a treatise upon this subject for the guidance of those less experienced than myself I should place the tampon emphatically first and use all other means as of secondary importance.

I am quite sure that I have in numerous instances produced incarceration of the ovum by the indiscriminate use of that much relied upon but often abused drug, secale cornutum; that it is invaluable in conditions indicating its use cannot be denied, but to use it empirically should be condemned for it is

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liable to produce tetanic retraction of muscular fibre, thus locking up the uterine contents within an unyielding and rigid os. Every physician has encountered this condition of things, but was hardly willing to admit it even to himself that his indiscriminate use of ergot was to be blamed for all the mischief. We have no such fears in the use of the tampon, it is a measure sure and safe and will rarely disappoint if properly applied. It is of no use to apply a tampon for the relief of hemorrhage unless it is scientifically done, anything short of this will end in failure and disappointment.

An ordinary bivalve speculum will answer every purpose; some prefer Syms and the lateral position. In placing the tampon much care should be exercised in laying the foundation. The lint or cotton should be firmly packed around the cervix including the posterior Cul-de-sac, and pledget after pledget should be laid on until the vagina is firmly and solidly filled. After removing the speculum several large pledgets of cotton placed over the external end and firmly held in position by a T bandage secured by a strap around the body above the hips, will complete the operation. Whatever is used in the formation of the tampon, whether it be cotton batting, lint or strips of cloth, should be aseptic as far as possible, and the pledgets should be secured to a string the end left protruding for its better removal. If this is done as above described there need be no fear of further bleeding, and as a rule you need pay no further attention to the case for six or eight hours when it will be time to remove the tampon, and if needed replaced by a new one. Every physician knows that pressure thus exerted upon the os uteri causes relaxation and brings on expulsive pains. When the tampon is removed, as a rule the ovum will be either found in the vagina or extruding from the dilated os. The tampon may be removed sooner than the time above named if by cessation of pains it is evident the uterine contents have been expelled. There need be no fear of internal hemorrhage in embryonic miscarriage for the uterine cavity is quickly filled and further oozing an impossibility. If the fœtus has been expelled and

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the afterbirth still retained and not easily reached, the tampon may be replaced for a time.

In my opinion no physician should consider his patient safe and his work fully accomplished until he has secured the removal of the secundines in any case of miscarriage which has advanced beyond the second month of pregnancy. If it should happen in any case that the tampon fails to produce the desired dilatation, other means for producing this result must be resorted to. The following from Dr. Bedford, in my opinion, is entirely at variance with facts. He says, "It is a curious and interesting fact that the retained placenta in cases of abortion does not, as at the full period of gestation, undergo decomposition, and therefore if it can not be readily secured should cause no disquietude." Any one who follows this advice will find himself, every now and then, dealing with septicæmia.

In conclusion I must admit that my efforts to bring this subject before you has not succeeded in accordance with my wishes. That my paper is far from complete I am frank to acknowledge. But, if it will be the means of arresting your attention for only one moment, and thereby in the slightest degree contribute to the relief of suffering womanhood its mission will have been accomplished.

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TWENTY YEARS OF OBSTETRIC PRACTICE.—SOME INTERESTING POINTS.

G. W. CHROUCH, M. D.,
Shaftsburg.

In twenty years of country practice an observing person will meet with experiences both unique and instructive. Our profession is so full, in Michigan at least, that each practitioner is chiefly confined within a radius of a few miles at most. Within these limits he will occasionally meet with cases which are not common and which are sometimes quite suggestive. Suggestion is a cunning tutor to him who does not slight its promptings.

Early in my obstetric practice I was called to the bedside of a lady who thought she would become the mother of twins. Her judgment was based on the fact that her abdomen was greatly distended. Labor began and continued as in ordinary cases. When the os was quite fully dilated I ruptured the membranes. But before I did this I informed the lady, as I always do primipara, that she might expect a gush of waters and not allow it to disturb her nerves. In this case not only her nerves but my own were disturbed. The quantity of amniotic fluid amounted to quarts. I stepped back to avoid the flood. The fluid poured off the rubber sheets in a very torrent on both sides and the foot of the bed. She exclaimed, "My God, doctor; what has happened?" It was nearly an hour before the uterus recovered from this liberation and took up its work again in this smaller field of action.

The balance of this labor was uneventful, and shortly there was born the most peculiar monster I have ever seen. I

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cannot even find an account of one quite like it. This fœtus was not quite anencephalic. Besides this peculiarity it presented a very rare species of spina bifida. I now have the specimen with others.

There was no cranial vault. The vault was absent from the orbital ridges and nasal tuberosity to a point corresponding to the inferior curved line of the occiput. The cerebrum entirely and the cerebellum mostly were absent. The medulla olongata formed a rounded, elevated tuft on the basilar process of the occupital bone. The spinal processes of the vertebræ were absent down to the third dorsal. The spinal cord was exposed down to this point without any covering whatever. It was flattened. This child was alive at birth; but it was merely a living clod. It did not cry. It did not move a muscle only when made to move. It was otherwise well developed. The suggestion which comes to me from these cases, and from other cases of considerable deformity of whatever nature, is this: When you find a superabundance of amniotic fluid expect a deformity. Arrest of normal development has been my experience in all such cases. I dare not attempt an explanation, even to my own mind, of why deformity and surplus of amniotic fluids are thus associated. May it be a result of creative force in part aborted or turned aside? In my cases of fœtal monstrosity I have been able to trace on the part of the mother (not the father) an ill inheritance. In one case (case 1) the mother came from a family which, for generations, had had insanity in it. This mother is now insane. In speaking of insanity here don't understand me as noticing post-partum insanity. In my second case the lady's mother was an epileptic, having finally died in a spasm. In the third case I could only find that the patient's mother had died in a state of imbecility. I could not get a clear history of this case. In the fourth the lady's mother had died in childbirth of eclampsia. But the lady told me her mother had had spasms all through her life. She was probably an epileptic. Query: Do neurotic conditions dispose to these malformations?

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In cases of thin walled uteri, and especially in those cases where the os is so thin it is difficult during contraction to distinguish its margin from the fœtal scalp, the introduction of forceps however carefully and skillfully manipulated is apt to lacerate more or less. Give such cases time for the head to escape the os; encourage your patient to wait; explain the troubles to her, she will either understand you or trust to your judgment. In cases of rigid os I have been successful in the use of the hot water douche and the administration of gelsemium and belladonna.

In several cases of obtuse or flattened pubic arch, I have changed the presentation from a head presentation to feet, extracting the lower extremities as I withdrew my hand. After securing all but the head a nurse would support the body while the head was being liberated. Liberate the head by manual and digital manipulation when possible; when not, carefully apply the forceps to the head. Immediate extraction of the head is necessary if the cord is compressed, as is apt to be the case.

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A CASE OF CENTRAL LACERATION OF THE PERINEUM.

SIDNEY I. SMALL, M. D.
Saginaw.

On the evening of July 8th, 1891, I was called to attend Mrs. S., aged thirty-three years, in her first labor. Reaching the patient at eight o'clock I found she had been suffering moderate pains for several hours and an examination showed a roomy pelvis, the os dilated and the head well down. The labor seemed to progress very favorably and at the end of three-fourths of an hour the pains had increased somewhat in force and frequency but still were not especially severe. Then came one more severe than any previous one, followed quickly by another, and the second stage was over, but in a most astonishing way. The child had gone straight through the perineum making a wound as though by a cannon ball, and leaving the vulva and anterior portion of the floor intact.

I had never seen a case of central laceration. I had probably read the three or four lines which some of the text books devote to it, but I know that when I saw the condition of things I was sorely surprised. The child was of medium size and it seemed impossible that it could have passed through so small a space with so little apparent force, for at no time were the pains very severe.

After the placenta had been delivered through the same abnormal channel, I made a careful examination of the parts. The laceration extended with irregular outline from a point in the central line near the posterior commissure to and including the rectal spincter, and denuding the lower end of the bowel for half its circumference and about an inch high. There

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was not much hemorrhage and I decided to wait for daylight in which to make repairs.

Early in the morning with the assistance of Dr. Davis and the late Dr. White, I repaired the laceration using catgut for the deeper sutures and silk for the rest. The patient made an excellent recovery, and on subsequent examination the parts were found to have healed perfectly throughout.

May 17th, 1895, I was summoned to the same patient in her second confinement. The labor progressed much the same as in the former case, and having in mind my previous experience, I was on the lookout for trouble, and a pain somewhat harder than usual coming on, I felt the head pressing the pelvic floor and threatening a repetition of the accident. I took a blade of the forceps, passed it under the head, and using it as a vectis I was master of the situation.

I expected a laceration but was determined it should be in the legitimate way. In this, however, I was disappointed for the head kindly accepted the way I had provided, the parts yielded with uncommon readiness and in a short time the child was delivered and without any laceration. Convalescense was uneventful and the woman has remained in good health.

In regard to the cause of the liability to this accident I only know that in the case recited there was a large pelvis in which the coccyx, because of its shortness and slight curve, offered little resistance to the descending head.

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SOME THINGS FOUND HELPFUL IN OBSTETRICS.

C. S. COPE, M. D.,
Ionia.

Gentlemen:

I come before you to-day with a few simple suggestions that may prove helpful to you in your work as obstetricians. Nothing great or wonderful, just a few hints. They may not be new to all of you, but to some they may prove a revelation.

"If we cannot on the ocean
Sail among the swiftest fleet,
Rocking on the highest billows,
Laughing at the storms we meet;
We may stand among the sailors
Anchored yet within the bay,
We can lend a hand to help them
As they launch their boats away."

And so while we of the rank and file of the profession may not be able to do any great things, yet we may by careful attention to the little things that come to us to do make more perfect the noble calling to which we have consecrated our lives. You have doubtless often been disgusted and your patient mortified by having the contents of the lower bowels suddenly ejected into the bed at a very critical time during confinement. The various home-made devices have always proved insufficiunt at such times, and the person of the lying-in woman and the hands of the accoucher become soiled at a time when it should be otherwise. Now the remedy I suggest for this may not meet your approval. Indeed, you may on certain grounds loudly denounce it, but I beg of you to suspend judgment until you have given it a fair trial.

My custom is to place under the hips of the perturient woman three or four newspapers evenly spread, one over-

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lying the other smoothly. This is done after the discharges appear and labor is fairly begun. I have at hand a large pile of newspapers, some cut in halves and fourths, that I use as napkins and absorbents for profuse discharge. As fast as any are soiled they are taken away by assistant and burned. If there is a large amount of amniotic liquor or excessive hemorrhage the bed and floor are well protected by newspapers. In this way I have saved many a bed and nice carpet from soil and destruction. By this method the bedding and floor are kept free from discharge, there are no heavy quilts or pads to remove to lie in back kitchens and woodsheds waiting for a convenient wash day. No bad smells are found in the lying-in room, the patient has a clean bed to lie on and does not have to be moved to clean up afterwards, which is a thing greatly to be desired in some cases. The satisfaction you will derive from this procedure will be great, and you will win the everlasting gratitude of the attendants when they see the usual arduous washing after confinement entirely or largely prevented.

Your objection will be on sanitary grounds and possible contamination urged. But in the families of the poor the newspaper supersedes in cleanliness many of the musty old quilts I have had to use in years gone by. Now in the families of the rich we have the wood-wool pads and napkins; in some cases we have rich old linen; in others cool, sweet, clean muslin; in others cotton batting subjected to a high heat in the oven and wrapped in well washed cheese cloth—all these are excellent, but I have had as good results from the use of the ubiquitous newspaper.

Brethren, the second head of my discourse has to do with forceps delivery. I desire to call to your attention to the axis traction handles that are for sale in every surgical instrument store. They only cost $2.50, are easily applied—thus, (showing how they are attached) and by their use you can expedite a tedious labor and deliver the child where otherwise you might have to call professional assistance. You have no doubt stood tugging and sweating in a tedious case, pulling all you dare for fear of suddenly rupturing the perineum, and

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persuading yourself that you were exerting all your strength, when the facts are you are shoving with your left hand as much as you are pulling with the right, and the child's head makes no progress. Stop to think a moment, you can take one hand and seizing the woman by the arm or leg you could drag her from the bed and not exert all your strength either; so the visible manifestation of strength apparent at the end of your obstetric forcep handles is merely pantomime. You tire yourself and do no good. I once saw a large man, a doctor, making traction with both hands and all his force on the head of a child; not being able to extricate it he called to another doctor to grasp him about the waist and pull on him. The attendants held the lying-in woman, a little thing not much larger than a thirteen-year-old girl, yet she was thirty-five and this her first baby. At last the delivery was completed with a bang and a complete rupture of perineum and rectum, but the child was born.

"Oh, my countrymen!"

Now by the proper use of the axis traction handles this labor would have been nicely and properly done without such serious results. I most heartily commend them to you, and before another half dozen difficult cases are under your care you will unite with me in saying they are simply invaluable.

I proceed now to speak of the management of uræmic convulsions.

Was called a few days ago to see a lady who was having repeated convulsions. She has Bright's disease. Her father died of that disease.

I prescribed for her a year ago. Urinalysis revealed much blood—casts—and albumen. She improved under treatment and in a few months ceased to menstruate, but aside from this had no sign to convince her that she was pregnant. I lost track of her, hearing occasionally that she was in the best health she had ever known and with a splendid appetite.

When confronted with a convulsive seizure I was not slow in divining the cause, uræmic poisoning—chloroform to allay spasm. Copious venesection and a teaspoonful of chloral hydrate dissolved in a tablespoonful of warm milk thrown into

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the rectum and held by compress to anus were the steps of the treatment. Six tablets of active cathartic tablets, calomel, podophyllin and croton tiglii were ordered every two hours till active catharsis resulted; ordered her put in a vapor bath until profuse perspiration should result, but in this we were foiled as the attendants did not succeed in this. Catharsis and diuresis were kept up for several days. There were no convulsions after the administration of the chloral. In three days patient was able to be up, and in less than a week to resume her household duties. She is seven months pregnant as the fœtal heart sounds attest, and has not menstruated for that length of time. What I wish to emphasize in these serious cases is copious bleeding and large doses of chloral dissolved in milk and thrown in the rectum, being held there until it is absorbed.

Under the last head we will speak of those hard to manage, uncontrollable uterine hemorrhages that like Banquo's ghost arise occasionally to vex us and "will not down."

In February last was called to see a lady who had been flowing for several days. She was the mother of several children, had twice been operated on for lacerations and "had suffered much at the hands of many physicians."

Having an intelligent idea of the gravity of uterine hemorrhages she had promptly taken to her bed; used astringents and vinegar and other household remedies to staunch the flow, but to no purpose. I found her flowing moderately but constantly without pain, and yet not expulsive nor passive. To describe it accurately would be difficult. I suspected miscarriage, but this was denied, and there was no reason for her to deny the accusation if it were true. The sound showed a depth of four and a half inches. She said all the doctors told her "her womb was too large." Curetting gave no results. Two and a half ounces of fluid extract of ergot, Tilden's formula 1874, were duly administered, but no appreciable retardation of the flow. Under this the arteries became strong but no other signs were manifest. I then gave two and one-half ounces of liquor sedans in proper doses, but no result. Later the same of Hayden's Viburnum

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Compound, then ergotine in pills for half a day. Tampons in the vagina did no good. Three days had gone by and she had anæmia, although milk and nourishing diet and quinine were given.

I gave her hypodermics of Sharpe & Dohme's ergotots that never failed me before, but no result. We had the foot of the bed elevated and the pillows removed all this time, and like the gunner who had fired the last shot I sat down to cogitate and wait for the smoke to clear up. I remembered to have read somewhere that atropine would control fluxes and hemorrhages, and with no faith in it concluded to reverse the order of things and give it a trial. I had some dosometric granules made by W. C. Abbott, of Chicago. They contained one five-hundredths of a grain; one was given every half hour for four hours, when the flow was assuaged and this scarlet stream that like Tennyson's brook bid fair "to go on forever" was checked in its course and the woman made a rapid and permanent recovery. This was the morning of the last day of treatment, and no medicines had been given during the night, so that to the atropine must be awarded the victor's crown.

Who can account for this singular case, and who can explain the action of atropine in arresting hemorrhage?

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CARE OF THE BREASTS AFTER STILLBIRTHS OR WHERE AN OBSTACLE TO NURSING EXISTS.

T. S. MURDOCK, M. D.
Northville.

It has been said that "He who most closely observes and follows nature's intimations and workings is likely to become the safest and best counselor and the most successful attending physician in any class of disease." Whether this be so or not, frequently the best ideas for guidance in preventing, eliminating and overcoming disease are obtained from a close observance of the workings of nature under similar circumstances in the animal kingdom.

One of the things that used to be a perfect dread in my early practice was to be confronted with the care of the female breasts, when there had been a stillbirth or when from any cause suckling could not take place. As is well known, some women have a very short nipple barely reaching the level of the breast, while in others its place is occupied by a depression rather than a projection. In others the nipple is extremely sensitive even before parturition, and easily becomes chapped or fissured, or some previous disease may have destroyed or obliterated it, leaving no trace thereof. Again a flat induration, or a hard cicatrix, or adhesive bands holding it in a firm, retracted position may be found. Under such circumstances what is to be done, especially where there is no chance for flow of milk, no outlet, no orifices, no apertures to the lactiferous tubes? Such a case confronted me some years ago when called to see a patient who was already in the throes of labor. Before sufficient time had elapsed for removal of overcoat, my patient agonizingly ex-

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claimed, "O Doctor! can you in any way keep this breast from breaking again? I've always had such an awful time with it. The suffering is just terrible. I'd rather have a dozen children than one such breast." On inquiry, I found that she had had mastitis and abscess after first accouchement, and with the two succeeding confinements they had tried to keep from its repetition by the use of breast pumps, medicines, etc., but had utterly failed. An examination showed the old scars, one destroying almost entire trace of the nipple. There was a firm cicatrix almost central over it and much retraction, yet nearly as large and full a breast as its fellow, with a very slight oozing of the colostrum upon pressure. After assuring her that all would be done possible to prevent such another painful time and with all due encouragement, we took our departure to examine all books at hand and to do "a pile of thinking". The authorities proved of no avail, in fact said nothing about such a case, not even suggesting its possibilities or hinting at any kind of treatment.

My first thoughts were in reference to the function of the glands, which is strictly secretory; all the milk constituents, except the inorganic salts and water, being manufactured there, necessarily requiring a largely increased flow of blood during the activity of the gland. "The first influx of blood to the gland for secretory purposes after delivery of a child is," says one author, "a complete surprise to the sensitive organ and sets up a new physiological congestion as evidenced by heat and swelling, which were it not relieved by nature would soon become a pathological congestion." But with the increased vascularity, the arteries greatly distended and the milk forming process actively progressing, thus rapidly filling the ampullæ or reservoirs and lactiferous tubes and yet no chance of outlet for depletion, there was no means of relief to be seen except by checking the influx of blood to the part. To do this seemed practicable, for the gland is made up of a number of lobes connected by soft and fibrous tissues, perforated by arteries, veins and lymphatics, having on its top or periphery a firm fibrous covering and at its bottom a hard bony base. With these conditions existing it seemed practi-

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cal to apply a layer of cotton and then a firm, even, tightly applied bandage over the gland and around the body, similar to that advocated more recently by Prof. Dugas of Georgia, thus pressing or squeezing the blood out through the mammary and axillary veins and at the same time mechanically, by pressure on the arteries, impede the influx of blood through them, thereby preventing so free a secretion of milk and keep down the conditions necessary to carry on an acute inflammatory action. And I am not sure now but that this theory of firmly and evenly equalized pressure, applied early before the gland has become filled, would be a sensible and efficacious treatment.

The efficiency of drugs in their action and possibilities to alleviate or remove the trouble received much thought and due consideration. But so much doubt and difference of opinion seemed to be expressed in regard to the certainty of their action that my thoughts naturally wandered into other channels. While thus meditating and speculating my mind reverted to what bad been observed in my early days on a farm in regard to the animals. I remembered that whenever a ewe lost her lamb before suckling had taken place, (and such cases were numerous) seldom if ever did inflammation and abscess follow, but if the lamb died after nursing for days or weeks, then trouble was almost always certain to result. The same was noticed among the hogs, cats, dogs and other domestic animals. The rule among farmers is no trouble in these cases and no attention is usually paid to them. And yet an accidental traumatism or a cold might lead to pathological results. Among the wild animals, we are told, nature's workings are the same and with like harmless, salutary results. But especially did I recall the case of a heifer, which in the hot weather of June when the grass was abundant, stole away to the woods to have her calf, and although her bag was full and large before, yet when found several days after the birth and death of her offspring, her udder was noticed to be healthy, soft, shrunken away and nearly devoid of secretion. These observations led to a new train of thought and theorizing, wondering if the human breast under like

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circumstances, if left entirely to nature without any outside interference or meddling with, would always result as favorably; and if so, why?

Now let us for a few moments examine, under three heads, the reason why this let-alone theory, this leaving things entirely to nature's own workings and influences as noticed among the dumb brutes, might and should be snccessful when applied to the highest type of creation—woman.

First. We notice the difference in the composition and characteristics of the colostrum and that of true milk. The breasts stimulated by pregnancy take on an active vitality which soon gives rise to a secretion of a sero-lactescent fluid of a thin watery character, containing a few minute, imperfectly formed milk globules and a number of small granular corpuscles admixed in a more or less abundant yellowish viscid matter. This so-called colostrum is a bland, non-irritating, non-coagulable substance, slow in tendency towards decomposition, and easily re-absorbed back into the system. This is the secretion found in the breasts at and for a few days after delivery and has to be evacuated before true milk can take its place. Milk, on the other hand, although in its purity non-irritating, yet is easily decomposed, prone under stasis to coagulate and is not so readily re-absorbed. Still Winckel states that "In the Dresden Lying-in Institute sixty-seven per cent. of the cases where the trouble had even gone on to true puerperal mastitis recovered by absorption." And Prof. Gusserow of Berlin says, "Since we often see a woman in whom for some reason nursing has been interrupted have no abscess or inflammation, cases in which there is only firm tension and then absorption of the retained milk, it seems doubtful whether retention of milk is so often the cause of acute inflammation as has been supposed." He also adds his belief that Roser is entirely right when he maintains that "The retention of milk is not the cause, but the result of the inflammation." In the light of these testimonies from such men of eminence, whose truthfulness and ability we would not for a moment question, why should we expect any other result than perfect absorption without any

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untoward symptoms in these cases where the milk ducts are as yet only filled with the blander, the thinner, the more easily absorbed secretion—the colostrum?

Second. As has been noticed the functional activity of the glands at this time has been aroused to take on the new duties of milk making, so that every acinus is distended, the connective tissue is much richer in cell elements, the nerves (largely of spinal origin mixed with some sympathetic filaments) are stimulated to increased activity and the arteries (which are chiefly branches of the internal mammary and the long thoracic) have become enlarged and are energetic to pour in the extra amount of material out of which this new secretion—milk—is to be mainly formed. Hence we would expect a damaging congestion, but nature speedily readapts the supply to suit the demands and instead of a permanent enlargement of the arteries, the stimulus being gone, a relapse into their previous condition of activity and size results. The pressure of the over-filled and distended gland also impedes this influx of blood as would a well and equally applied pressure from without, and thus helps to check this rapid torrent of blood towards this already too full gland. At the same time the absorbents, the lymphatics and the veins that have been in like manner stimulated up to a greatly increased activity, are still working and remain thus active in their work of relief in carrying away the excess secretion for a long time after the others—the influx activities—have been exhausted and the flood-gates closed. Hence nature thus provides for and causes the subsidence of all the trouble.

Third. As yet there has been no opening of the mouths of the milk ducts by the flowing of the milk through them, and hence no chance for microbes to enter in through their as yet closed portals from without, and the pressure from behind from this distending secretion would also hinder their ingress. Likewise there is as yet no fissures, cracked nipples, abrasions or traumatic lesions to assist or permit microbes, germs or poisons to gain entrance. Neither has there been any misusing of the breasts by harsh, vigorous rubbing with questionable liniments, nor suction and irritation from the use of

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foul milk-pumps to act as poison or germ carriers. Hence in avoiding these, the most fertile extraneous causes of infection and trouble in such cases, one would expect to sail safely by the breakers and glide peacefully down the placid stream of healthy life. And such proves to be the case.

After thus reasoning do you ask whether my courage was sufficiently strong to enable me to adopt the conclusions and convictions of my observations? Most certainly! The next morning I returned to my patient with a lighter heart and a radiant countenance, beaming with hope and inspiring confidence. Simply a layer of cotton batting was placed over the breast with a light bandage, just sufficient to keep it in place and to keep the breast from dragging, thereby to protect it from cold and bruising. My patient was told not to touch it, not to rub it, not to put anything else on it, nor to permit any one else to do these things, with the assurance that it would fill and feel very full, but would not hurt her nor cause much if any pain; that after remaining thus full for two or three days it would gradually become smaller and dry up without any caking or breaking and leave the breast as soft and flaccid as though nothing had happened. As soon as it filled some of the old neighboring grannies shook their heads knowingly and wanted to use their favorite, never-failing goose grease and camphor or milk-pumps, but I said most emphatically *no*, or else I would have nothing more to do with the case. And they did let it alone, and I watched, not even disturbing the covering except to look at it and gently feel of it to see that it was not caking hard, and the result was as I had anticipated and predicted—simply a fullness without pain—a perfect success, leaving a soft, empty, healthy breast.

For the past twenty-five years every case coming under my observation where nursing was not desirable or where from any cause it could not be readily accomplished, cotton has simply been put over the breast or breasts, as the case might be, and no other treatment has been used or permitted, simply letting nature have her own way, and I have never regretted it; never have seen an untoward symptom or

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result in any single case. Sometimes the breast has leaked, but that made no difference, and when the opposite breast was being nursed it did not change the result in the one being treated. The only trouble ever had was in fighting the meddlesomly inclined old ladies and making them obey the injunction, "Hands off, this is my patient."

Of course camphorated oil and belladonna might be used additionally but they have never been needed. Nature has been all sufficient for the task and she generally does her work well when not interrupted by officious hands. She *does* sometimes work *wonders* worth observing, and if we would more frequently stand by with folded hands and thereby emulate one branch of our noble profession by doing the little end of nothing, we would please the majority of our patrons as well and rake in fully as many sheckels, whether we would be as scientific and successful in combatting disease or not. It is a well known fact that very many patients will get well in spite of the disease and the doctor.

Now if there is any doubting Thomas here let it be remembered that "The proof of the pudding is in the eating." We do not advocate this way of handling cases where nursing has been going on for days or weeks, but if you see a case before the colostrum has been drawn out, just try this let-alone-to-nature treatment which has been infallible in our hands and in the hands of some others who have been induced to adopt it, and you will never regret so doing, but become as enthusiastic and confident as I am in its perfect, comfortable, never-failing, never-disappointing results.

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EVERYDAY MISTAKES IN OBSTETRICAL PRACTICE AND THEIR RESULTS.

L. L. LENNOX, M. D.,
Detroit.

Mr. President and Members of the Society:

In the way of explanation, I would like to say that the object of my paper is particularly to draw the attention of the members of this society to an existing evil of which we are all cognizant, and not an attempt to specifically enumerate or describe the mistakes in obstetrical practice. By a brief general comparison between the correct method and the existing practice of too many so-called accoucheurs this fact may be profitably impressed upon our minds.

There is nothing in the title of my paper suggestive of anything particularly interesting or new. Every day mistakes in obstetrical practice and their results, especially the latter, are only too well known to every practitioner and especially to gynecologists, who find so many poor, suffering women upon whom it is absolutely necessary to resort to surgical or other means in order to give them relief, and partially, if not wholly, restore health.

Granting that a small percentage of causes of pathological conditions subsequent to childbirth is congenital or unavoidable so far as the care and attendance is concerned, I think that we will all admit that the percentage of women who have borne children and are obliged to place themselves in the hands of the gynecologist for subsequent repair, (if I may use such a term) is very unnecessarily large. This being true it is our duty to see if this condition of things can be remedied, and as Dr. H. W. Longyear of Detroit said in a

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paper recently written by him on "Mechanics and Surgical Treatment of Backward and Downward Displacements of the Uterus," "Prophylaxis, the highest art of our calling, should be our first aim." It is our duty therefore to do all in our power to impress the laity, as well as the profession, with the great importance of proper and skilled treatment of the parturient woman. Granting that ovaries, tubes and even uteri are sometimes unnecessarily sacrificed, there are hundreds and thousands of women going through life invalids, or find premature graves because they are placed in the hands of the gynecologist too late or not at all.

I will first briefly outline what the duties of the accoucheur are as we understand them from our own experience and from the writings of eminent authorities on the subject.

First. Every pregnant woman should be in consultation with her physician whom she should engage at least as soon as she is certain of her pregnancy, and act under his or her instructions.

The urine should be examined at intervals of two weeks, whether there is œdema or not and whether there are symptoms of uremia or not, until time of delivery. Examination per vagina should be made only when conditions or circumstances indicate that there may be some abnormality, that strict asepsis should be followed out, which means not introducing into the vagina any septic germs. To prevent this I place carefully in the vaginal opening a plug of sterilized or medicated absorbent cotton or iodoform gauze, then cut away the hair surrounding the genitals and follow these precautions with a thorough cleansing with soap and brush, and lastly a bichloride solution of one in two thousand of all the surrounding parts, including the labia and vulva, thighs, buttocks and of course the anus and perineum. This done I next see that the patient is lying on a thoroughly clean bed and none but sterilized cloths or pads allowed for her use. Having omitted none of the above details and with the hands thoroughly aseptic, you have done all you can for the prevention of introducing germs of infection into the vagina or uterus of your patient. Of course your hands should be

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made aseptic before each examination, and these should be as few as possible. I also use as a lubricant soap dipped in warm water instead of vaseline, lard or sweet oil.

The forceps should be used (with chloroform) not as a last resort, when nature has proved unequal to the task, the patient's strength given out and her nervous system suffered a severe shock, but when by their use we can save the mother and child from prolonged suffering and waste of strength, which should be preserved with the greatest care possible. With regard to the use of forceps, I should like to say that while I advocate the early and frequent use of them I do not wish to be understood as encouraging their use indiscriminately or simply to save time, but there should be a *reason* for their use, and in addition to the reasons given by our recent American authorities who have included inertia of the uterus, I would add prolonged and extraordinarily severe uterine contractions out of proportion to the advancement being made (here the use of chloroform is especially demanded). I would also like to emphasize the importance of great care in the application of the forceps which should always be sterilized before using. I believe a great many practitioners are unnecessarily hasty and consequently rough in the application of them, and make traction before the forceps are properly locked instead of removing them again and again, if necessary, until they can apply them where they will lock easily. I have learned from experience that, when I fail to lock my forceps after two or three attempts, to introduce my whole hand into the vagina and perhaps change the exact position of the presenting part is of great assistance in applying the forceps.

This has reference especially to the application of the forceps when the head is passing through the superior strait. I will also refer in this connection to what has been my experience with regard to lacerations of the perineum in forceps delivery.

I have never had but a few cases of laceration of the perineum when delivering the head with forceps. By being very careful and not hurrying that part of the operation, making

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traction forward instead of back against the perineum, after the head has entered the pubic arch, there is not a single case of laceration that would not occur if the forceps were not used. But I *have* observed that nearly all the lacerations I have had have been made by the shoulders after the head was delivered and the forceps removed.

For the last five years I have never delivered the head with forceps that I did not immediately examine the perineum after the removal of the forceps and before the shoulders were delivered, so as to know positively that the shoulders and not the head caused the laceration. Immediately after the delivery of the child and the complete removal of every part of the placental tissue, the vagina, perineum and rectum should be closely inspected. If any lacerations exist they should be immediately repaired, and to do so the physician should never be unprepared.

Next I see that all soiled clothing on or under the patient is exchanged for dry and clean clothes. An aseptic pad and bandage is applied and fastened by perineal straps for the purpose of holding the bandage in position and also to keep the pad of sterilized absorbing cotton or some aseptic dressing in place over the vulva and perineum.

The physican should impress upon his patient the importance of returning to him for examination as soon after involution of the uterus has been completed as possible, say six weeks or two or three months. If any laceration of the cervix is found it should be repaired within from three to six months after delivery.

We hear comments daily from the laity as well as a large number of the members of the profession about the wholesale operations being performed daily by the gynecological surgeon. If we will carefully compare the results which would follow the proper care (such as I have briefly outlined) of the parturient woman with what we know to be the practice of today, not only at the hands of filthy and ignorant midwives, but by a large percentage of practitioners, some of whom do so through ignorance and some through willful indifference, we would not only realize that thousands of women go

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through life with lacerated cervix, vagina or perineum, many of them with torn and useless sphincters of the rectum to add to their other miseries, a vast number who after two to ten years of suffering put themselves into the hands of the skilled gynecologist who alone can relieve their misery, and benefit greatly if not cure them of their many ailments, almost all, directly or indirectly, caused by unskilled or careless treatment when they pass through the most important epoch of their whole lives, viz., childbirth, and we would be aroused to the fact that we too are guilty if we do not use every means possible to bring about a grand reformation in the practice of obstetrics.

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CYSTITIS IN THE FEMALE, AND ITS ALLIED IRRITATIONS.

J. A. PORTER, M. D.,
Brooklyn.

The diagnosis of cystitis from other bladder troubles is now more easily made than in my student days, thanks to the improved instruments and modes of examination. Many cases were diagnosed as cystitis which were not so, and also many were classed under other names that ought to have been named and treated as cystitis.

Suppose a patient presents herself complaining of frequent micturition accompanied with pain during but more so after this act. She seeks relief at our hands. It is necessary in such a case to know what is the condition of things before we can treat properly. And now comes the great test upon the skill of the physician. It will be the blindest of blind work if you prescribe for that patient demulcents, nitre, buchu or triticum repens upon her representations. Such off hand prescribing is worse than ordinary quackery. In such a case we have to do with but one of a large number of possible diseases Or at least it is very improbable that there is more than one basic lesion which is causing the patient to seek relief. Is it a true cystitis? Is it a reflex from renal or ureteral trouble? Is it from irritable caruncle of the urethra? Is it urethritis, specific or otherwise? Is it from a vaginitis or vaginismis? Is it from the presence of cribiform openings in mucous membrane of vestibule? Or is it from a small sinus beside the ureatus? Is it from brain or spinal lesion? Is the trouble due to some article of food, such as shell-fish, too much salt, parsnips, green vegetables or the like? Is it

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from some quality in the drinking water, beer, tea or coffee? All these different conditions and semi-causes must be considered. Possibly it is a case of vesical calculus. In short, a thorough examination of such a patient is demanded.

Owing to lack of time I shall pass by all the different ailments that might be and consider more especially cystitis in the first place, and irritable bladder at the conclusion.

In a case of cystitis, we will first examine the urine. If the urine contains an abnormal sediment and constituent mucus, which will settle to the bottom of the containing vessel and adhere to the vessel upon decanting until the urine is nearly all emptied out, there is a strong probability that we have a case of cystitis. This suspicion will be strengthened if upon inquiry there was an increased distress about the region of the bladder covering a period of a week or two. If there is fever and a sweetish smelling breath, thirst, etc., we have probably to do with acute cystitis. With all this, there may be both blood and pus in small quantities. The bladder is very intolerant of any urine, and the extrusors are stimulated to great spasm-like action and the bladder is kept in pain by this action nearly all the time. Appetite is almost wholly absent, bowels are usually sluggish, sleep is broken or wholly prevented. The nervous system is functionally disturbed. Typhoid-like symptoms supervene and with an extension of inflammation to pericystitic tissues we may have more or less peritonitis, suppuration, coma and even death. As long as the inflammation is confined to the mucous membrane about the lower section of the bladder, especially to the trigonum and urethral outlet, it is more troublesome and painful than dangerous. If these two parts are free from inflammation we may have still a dangerous form about the mouth of the ureters and base of the bladder. If there is no pus in the urine, the bladder may not be very irritable if the inflammation is in the fundus or upper two-thirds of the bladder.

The chronic form of cystitis is different from the acute, as most chronic forms of disease differ from their acute forms. The chronic creeps in insidiously, and it is so fixed before the patient applies for relief that it is the form with which

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we have to do most frequently, because the subjects of it apply to more physicians for its relief. They meet with so many failures that they apply first to one and then to another. The chronic sometimes follows the acute form, but the most intractable forms seem to arise as it were in a chronic way. Like all chronic diseases this pursues a slow course, sometimes a little better, then a little worse. It may last for years and slowly creep up the ureters to the kidney to at last destroy the patient with an acute, or subacute, or chronic nephritis. Life has been a distress and burden for years and is laid down almost thankfully. These chronic cases are often an opprobrium to our profession. Therefore if by comparison of thought we can help each other to help these unfortunate sufferers it will be time well spent.

The symptoms of acute cystitis are pain over the region of the bladder, pain of a scalding, piercing nature during and after micturition, a desire to urinate frequently, even as often as every five minutes, often a constant desire without relief by the act. This is called sometimes strangury. Often sympathetic tenesmus of bowels is complained of. Pain radiates down the thighs, and is in men quite severe in glans penis, and sometjmes in the testicles. Systemic disturbance occurs from fever, pain and loss of sleep. Operating causes will add other phenomena such as where residual urine is absorbed, or if specific inflammation is operating, or if stone in bladder is the cause, or if zymotic fevers are the agents, etc. The chronic cystitis is characterized by mucus in urine as is also the case in acute, sometimes accompanied with a little pus or blood or both. Its pain is not quite so sharp as in acute. Its onset is less explainable and more insidious. It is not accompanied by fever of any amount worth mentioning. Appetite is often fair and sometimes good. Almost all symptoms are referable to bladder and urethra.

In making a diagnosis where we have the foregoing symptoms we should confirm the matter or at once disprove it by simply looking at the inside of the bladder in all practicable cases. This can almost always be done by Dr. Kelly's method in women, and to some considerable extent by means of the

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electric cystoscope in both men and women. In Dr. Kelly's method we place the woman in the knee-chest position, and having used a twenty per cent. cocaine solution in the urethra pass a suitable sized speculum in through the urethra. Air at once dilates the bladder and the inside is viewed with reflected light from a forehead mirror, using any good artificial light. We can thus confirm our diagnosis or disprove it.

Having settled this matter we may now treat. If we have suspected cystitis to exist, we ought to be ready to treat locally at the same sitting as when we use the speculum. This may be best done in the case of women, in my judgment, with the patient in the knee-chest position. The principle that would govern is the same as would be useful upon any other inflamed mucous membrane.

I would use warm douches of normal saline fluid followed by solutions of borax and soda. I would vary with peroxide of hydrogen and tannic acid; in more obstinate cases, gelatine mixed so as to form a suitable diluent for ichthyol applied by the method of Dr. Clarke of Maryland. After these applications, rest in bed for a time is best. Then washings ought to be given twice a day, but the application of ichthyol twice a week. If, in spite of all this treatment, inflammation still persists, then I would in females open the bladder into the vagina and order the wearing of a urinal. I would then treat for a time through the artificial opening. I have never yet had to resort to this, however, and I have had reason to believe that I have succeeded in bringing about a practical cure in all cases that did not refuse treatment. I have also found galvanism to be of no essential value in the treatment of chronic cystitis, but for simple nervous irritability of the urethra it is sometimes useful. Faradism with the long coil is still more useful in that affection. This and nux vomica or strychnia is very serviceable in atony of the bladder and its chronic cystitis. Tobacco, tea and coffee ough to be forbidden. Milk should be freely used and whenever it can be assimilated readily it should be the main article of diet. All local measures should be undertaken with the most pains-taking asepsis possible. The tubes, catheters

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and funnels for irrigation should be thoroughly washed with a corrosive sublimate solution, one in one thousand, after use, and then they should be kept in cans of sterilized water. Boracic acid should be given by the mouth with some demulcent such as barley water or flax seed and couch-grass. If there is acidity of the stomach, bicarbonate of soda in dram doses before meals in a glass of hot water will be useful until the acidity is neutralized. Sometimes balsam of copaiba with a solution of caustic potash will be very helpful.

An excellent plan of treatment for a local application is to dilate with air by position and then spray the interior of the bladder with solutions of ichthyol, nitrate of silver, tannic acid or boric acid in water, in which is mingled a little geltine. Use it at a temperature slightly below that of the body, say about 90°.

This is less painful than Clark's mode and I think as effective if the air dilates properly. Carbolic acid two to five per cent. in glycerine is also a good spray, and has the merit of being in a measure analgesic. Anodynes, rest and astringents used in such a way as to be both aseptic and antiseptic is the treatment that will prove successful in the great majority of cases if carefully carried out. In neurotic cases the local treatment is not very necessary, yet the bladder needs careful examination so as to be certain as to the degree of local trouble. The patient must be physically built up. Disturbing elements to urinating must be removed and remote causes searched for and removed, such as strictures, hemorrhoids, adherent prepuce in male, or corresponding structure in female, worms in the rectum, etc. In neurasthenics and in cases of true spinal affections we are likely to fail in the present state of our knowledge to give the relief desired. In some cases, dilating the urethra so as to produce temporary incontinence is valuable, but it is a very uncertain treatment as it is impossible to dilate to that point or degree which will always permit of a return to a normal contractile power of the sphincter like action of the urethra. Moderate dilatation, however, is very useful as a sort of nerve stretching process. This is so especially in irritable urethras and bladders where no inflamma-

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tion exists. In these cases a very careful search must be made for the cause. Often a small telangiectasic growth will be found close to or just within the meatus; sometimes a minute polyp in the urethra. Often small sieve like openings are found in the vestibule about the meatus urinarius, and the urine passes off those by capillary action probably. This is apt to cause irritation and slight inflammation of these short sinus-like tubules, and will produce irritable bladder symptoms. The remedy is simple and consists in slitting them open to the bottom. If any adhesions are found about the clitoris in female or glans prepuce in male, loosen these adhesions and the irritable bladder symptoms will subside. If worms or hemorrhoids are the cause, remove these. If vaginal prolapse exists with cystocele, then give the patient the benefit of some suitable plastic operation on the vagina so as to restore that canal to its normal. In short all cases of irritable bladder and urethra not due to inflammation of these parts are reflex phenomena, and their causes must be sought for and appropriate treatment applied to remedy the defect or remove the cause.

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SUPERFŒTATION AND SUPERFECUNDATION, WITH THE REPORT OF A CASE OF THE FORMER.

A L. BAILEY, M. D.,
Chesaning.

It is with a great deal of hesitation that I come before this learned body today and present for consideration a subject that has received the attention of the most learned in the medical profession for years, and with so little satisfactory results as to whether or not superfœtation really occurs or not. By this is meant the formation of a fœtus as the result of an impregnation after one or more menstruations, but before the birth of the offspring produced by it. Superfecundation we understand to be the fertilization of two or more ova at the same menstruation by two different acts of coition, a thing that is pretty well agreed upon by authors, as the evidence in support of this theory cannot be very well or positively denied.

Cases in support of this theory have been reported in which the same woman has given birth to twins having evident traces of being the offspring of fathers of different races.

A white woman may give birth to twins, one white, the other black; a Negro woman may have two children at one birth, one white and the other black; a Creole woman of Brazil may bring into the world at one birth three children of three different colors, white, brown and black, each child exhibiting features peculiar to all three races.

There are cases reported of simultaneous uterine and extra-uterine fœtation, which I presume will not be questioned here at all.

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Upon the subject of superfœtation there is a wide difference of opinion as to whether or not it ever occurs. The question as to a woman conceiving again when there exists already a fœtus in the womb is the one that comes to us today for special thought and discussion. Upon this subject I wish to engage the attention of this association by presenting a case that came under my observation not long since.

In the last six years of practice it has fallen to my lot to deliver four women of twins and two of triplets, a very uncommon thing I am informed by many old practitioners.

The first two cases were normal in which two girls were born in each case. The third case was both boys in which I consider that one of the children perished from some cause at about the fourth month of gestation. I found upon examination the presentation of a small fœtus and delivered it. It appeared to be about the size of a four month pregnancy, and at once the vertex of a large, full-term child with bag of water intact presented.

The small child was wrinkled and flattened out and the cord was shriveled up and appeared like a string. The placenta was anastomosed with the large one and showed calcareous degeneration of the whole of the side that supplied the small cord.

The triplets were one set boys, the other girls. The first of the male children was a breech presentation, born before I arrived and still. The other two lived for several months and died of intestinal trouble. The girls were born about two hours apart, living about the same time, and were of seven months gestation.

Upon the subject of superfœtation authors are divided. Some do not believe in it at all, others are doubtful, while others seem to favor this view. Recent writers are the more skeptical as a rule.

Lusk says that the theory that impregnation can take place at two periods distant from one another must be regarded as an inadvisable hypothesis until physiologists shall have succeeded in demonstrating in a single instance by the presence

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of corpora lutea of different ages that ovulation ever occurs during pregnancy.

Playfair after discussing the objections to the possibilities of superfœtation as to mechanical obstruction or ovulation says: "The reasonable conclusions therefore seem to be that although a large majority of the supposed cases are explicable in other ways it cannot be admitted that superfœtation is either physiologically or mechanically impossible."

Meigs says nothing on this subject in his fourth edition under this head, but under another subject he says that conception "does not necessarily put a stop to the periodical development of ovarian ova, nor to their maturation and fall."

Dr. Bedford in his most able treatise on this subject says, after speaking of the objections urged against superfœtation, "These objections, therefore, in opposition to the doctrine of superfœtation are not valid, but when we take into account the important and undeniable evidence on record, irresistible and therefore conclusive, that cases of this description have actually occurred both in the human subjects and animals, superfœtation must be recognized not only as within the range of possibility, but as having been more than once practically illustrated."

Professor Palmer of Cincinnati expressed himself not long since in this wise: "Superfœtation is an occurrence not often possible until toward the end of the third month of pregnancy, when the decidual cavity becomes spontaneously closed by an adhesion of two layers of the decidua, the decidua vera and decidua reflexa."

Taking into consideration the quotations from the above authors, and from illustrative cases cited, and from an experience in my own case to be related, I can do nothing else from my own standpoint but believe that a second conception is possible after one or more menstruation periods have passed over, or at least until the decidual cavity becomes closed.

The theory that ovulation does not occur during pregnancy has not been proven nor does it seem it can be, because it is impossible, as the opportunity to illustrate or observe the occurrence or the results of it upon the ovary cannot be

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had; but this is no reason it is not so. We know that some women menstruate during a part or the whole of the pregnant state, and as menstruation and ovulation occur near together normally during the impregnant state, why then can it not be possible and even looked for during the pregnant state? I do not believe the position that Lusk takes is one we should accept without hesitation. Because a theory cannot be proven or demonstrated by physiologists is no reason for disbelieving it when there is no chance to prove it.

It is impossible to demonstrate how cleavage takes place between ova and spermatozoa, but we know it does so. We have cases reported by reliable men frequently that cannot be explained in any other way. Shall we wait until these men can demonstrate corpora lutea of different ages during the pregnant state when the conditions are such that it cannot be done, before we believe the theory of superfœtation?

The cessation of ovulation is no doubt the rule during pregnancy and the cause of so few cases of superfœtation. The objection to this theory is again explained by the filling up or covering over of the openings of the tubes by the decidua, thus hindering the passage of spermatozoa to the tubes or the impregnated ova back. But the deciduæ reflexa and vera do not become closed before the end of the third month, and until this occurs there is left opportunity for the male contribution to pass upward.

The mucus plug theory, preventing the passage of spermatozoa into the uterus, is no longer believed to be true, as this plug is alike in the pregnant and the non-pregnant womb, which does not prevent their passage at any time.

The case that I wish to present to you to-day as a case of superfœtation is as follows:

Mrs. B., a primipara, aged twenty-seven, American born, was taken in labor at 6 P. M. on Tuesday. I saw her for the first time at 4 A. M. She was having regular, moderately strong pains. Upon digital examination I found presenting a fœtus, vertex first, and about half born. It was delivered at once and found to be of about three or four months' gestation.

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It appeared normal in every way, plump, and showed signs of life for a few minutes.

Upon further exploration with the finger I felt another child presenting vertex ahead and bag of water intact. This child was a large full-term one and in first position.

The bag of water was ruptured and the child delivered. While running my finger around the head of the child before the bag of water ruptured, I discovered the attachment of the small placenta. Just within the internal os I could feel its lower border.

After the birth of the large child the small placenta was expelled at once, the larger was almost all retained within the uterus and was released with difficulty.

I consider this a case of superfœtation from the following facts: The small child was viable, plump, healthy, and appeared to be of three or four months' development. The length was four and one half inches. The bones of the skull were as appears at this age of gestation. The head had the appearance of the same, also the face. I made sure the uterus was not a double one at the time, and have examined her after involution was complete.

I delivered her a second time of a full term healthy child and took special care to notice, and I feel sure her uterus is single and normal in all respects.

The smaller child could not have been near the age of the larger one by four to six months, from size, general appearance, the size and shape of the head; and everything pointed to a second conception of several months between each.

I neglected to mention the fact that this lady did not miss a menstrual term up to the fifth or sixth month. It could not be that the small child was blighted, as every indication pointed to its being alive and healthy.

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PARTIAL ABORTION; EXPULSION OF THE AMNIOTIC SACK ALONE; THREE SPECIMENS.

WM. C. STEVENS, M. D.,
Detroit.

It is not my intention to present an exhaustive paper upon this subject, but rather to provoke a discussion of it and thus call forth the experience of the members of the society. I fear, however, coming as it does at the end of the session, it will fall short of its object.

The causative relation between abortion and diseases of women has always been a fruitful theme of the gynecologists. As our knowledge of pathology increases, especially the newer pathology, bacteriology, so our knowledge of this relation increases and consequently the responsibility of those who have to deal with abortion increases.

The late Dr. Matthews Duncan used to tell us that ninety-five per cent. of all cases appearing at his clinic dated their first symptoms from a miscarriage. If this is true of abortions in general, how much more important is the subject to which I invite your attention today, namely, partial or incomplete abortion.

That the amnion and fœtus are frequently expelled, leaving behind the chorion, is known to every careful observer, but that the chorion is more frequently retained than expelled, when left to the unaided efforts of nature, some of you may doubt. From my observation I am inclined to the opinion that the membranes are retained in more than one-half of all deliveries occurring before the end of the third month, and during the first six weeks a larger proportion than this are retained. This opinion is based upon observed cases, and

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from the history of diseases clearly traceable to a recent miscarriage in which there was only a record of an excessive menstrual flow at or shortly after a regular menstrual period.

When we consider the fact that abortions occurring before the sixth week seldom come to the knowledge of the physician, and are frequently unsuspected by the patient herself, we can understand how the actual number of abortions occurring exceed the number observed.

The specimens which I show you are the result of letting nature take its course, and in this way I have found that in about one-half the cases all the membranes are retained, and in about twenty-five per cent. of the cases the amniotic sac is expelled without the chorion. In the largest specimen (No. 3) the amniotic sack was expelled, leaving behind a wellformed placenta.

SPECIMEN No. 1. I was called to see Mrs. L., who was taken with flooding at a regular menstrual period which was so severe as to cause fainting. Previous to this her menstrual periods had been regular and flow normal. The history of the case revealed no signs or symptoms of pregnancy. When I suggested pregnancy as the cause of the flooding my opinion was questioned. On examination I found the os patulous and easily admitting the end of the finger. The hemorrhage was so alarming that I tamponed at once, using strict antiseptic precautions, and set about resuscitating the patient. Twelve hours later the tampon was removed when the specimen was found at the os. Owing to the debilitated condition of the patient I decided not to remove the decidua at once, but applied the dressings as carefully as I would in a cœliotomy and left the patient to recover from the prostration before applying the curette. The specimen, as you see, consists of a smooth membrane about three-fourths of an inch in diameter, the upper part of which is covered with a fleshy mass for about one-eighth of its surface. This portion was evidently attached to the decidua serotina. The villi have commenced to dissappear from the rest of the surface of the ovum, as you will notice.

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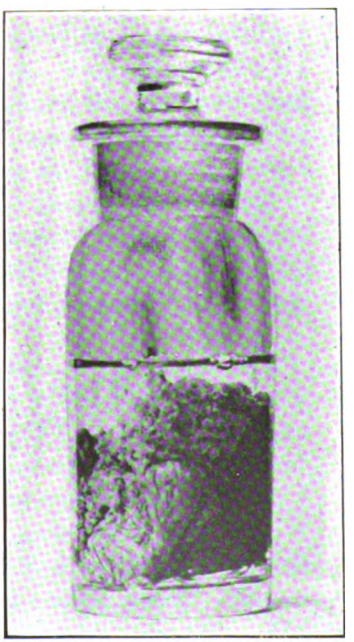
1.
½ Natural Size.

2.
⅔ Natural Size.

3.
½ Natural Size.



4.
⅔ Natural Size.

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The fœtus is not over one-half inch long, measuring the greatest length of the ovid.

CASE No. 2. The patient had passed a menstural period about ten days when she was taken with severe pain and hemorrhage and while micturating passed the specimen (No. 2). The husband saved it but threw away the clots. Supposing the membranes had passed away the case was left to "nature." On the fourth day the discharges became sanious and offensive; pulse rapid; temperature 104°. An examination revealed shreds of chorion hanging from the os. Without delay the uterus was curetted and thoroughly irrigated; within twenty-four hours the temperature fell to normal.

The specimen is about one and one-half inches in diameter and the villi are wanting. It differs from the last in that it is impossible to determine which part was attached to the decidua serotina. The fœtus is plainly visible.

CASE No. 3. The patient was about thirty years of age and pregnant for the fourth time; previous labors normal. Was taken with severe pain, but no hemorrhage. On examination I found the sack protruding from the os. Wishing to procure the specimen intact, the case was left to nature. To my astonishment nothing passed except the amniotic sack and contents. In the course of an hour the contractions of the uterus returned, and with some assistance the uterus expelled the placenta. The sack is about four inches in diameter. The body of the fœtus is about three and one-half or four inches long. The toes and fingers are perfectly formed, indicating a fœtus of about three and one half or four months or more.

CASE No. 4. Was called to see Mrs. O., February 20th, 1896, who believed herself pregnant for the fifth time; date of last menstrual period November 27, 1895. She had therefore missed two periods. She was taken with an alarming hemorrhage accompanied with severe pains. When I arrived at the house the nurse, an experienced woman that I have known more than twenty years, had removed the clots and expressed the opinion that all had passed away. An examination revealed nothing to contradict the opinion. The

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patient was dressed with strict antiseptic percaution. The lochia remained normal for a week, when she was taken with a violent hemorrhage followed by pain. On examination the os was found dilated, and with Dr. Longyear's ovum forceps I removed the chorion which you see, beautifully covered with villi.

It is unfortunate that the laity and even some physicians believe that an abortion occurring during the early months of pregnancy is attended with no danger, and that there is no afterbirth to pass away. Consequently an abortion during this period is looked upon with little more danger than a severe menstrual flow, and the physician is not called till some grave symptoms manifest themselves. While you are all familiar with the results of cases of neglected abortion, still it seems to me that it is one of the subjects which will bear repeating. The immediate danger is from septic infection unless the person in charge has observed rigid antiseptic precautions. This is the danger among those unattended or those attended by midwives.

A good example of this variety is a case referred to me by Dr. Frank of Detroit. The patient was a waitress, unmarried. She had had one child. Dr. Frank was called to see her at her boarding house. She denied her condition, but the offensive discharge, the high temperature and tender uterus told too plainly that she was suffering from septic infection as the result of an abortion. As she could not be treated there Dr. Frank had her removed to Emergency Hospital where we curetted, removing the contents of the uterus which were extremely offensive. The patient rallied nicely. The temperature fell to normal on the third day and she made a good recovery.

The remote effects of a neglected miscarriage are extremely disastrous and are not so amenable to treatment as disorders following delivery at the full period of gestation.

(1) Subinvolution; owing to the imperfect development of uterine muscles after an abortion the process of involution is slow and less perfect than after a normal labor.

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(2) Anæmia due to loss of blood and septic infection through the slow absorption of poison from the uterus.

(3) Acute and chronic inflammation of the uterus and its appendages.

(4) Moles, due to retained membranes.

(5) Disorders of the nervous system from local irritation.

(6) Secondary infection of distant tissues.

With such an array of misfortunes confronting the victim of a partial or incomplete miscarriage, it becomes us to exert our utmost endeavor to prevent such misfortunes.

First: We should educate our patients to the danger of neglecting miscarriages occurring during the early months of gestation.

Second: The practitioner should neglect no opportunity to perfect himself in the science of diagnosticating the period of gestation and the age and general appearance of the fœtus and its envelopes at each stage of gestation, so that he may know when the abortion is complete.

I will not weary you with any details of management except to urge upon you the proper use of antiseptic precaution.

Be conservative. *Patience* and a tampon will complete many a miscarriage, the tampon to control hemorrhage and excite uterine contractions, patience to wait for the expulsion of the membranes.

Be thorough in cleaning out the uterus. If you prefer the finger, well and good; but remember that, like all *instruments*, it will not meet all the requirements of everyday practice. A curette should always be found among your instruments.

Absolute rest in bed for a period as long, if not longer, than at the full period of gestation, with a nutritious and easily digested diet, will restore the majority to perfect health.

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SECTION ON GYNECOLOGY AND ABDOMINAL SURGERY.

OFFICERS.

N. W. WEBBER, Detroit, Chairman.
JOSEPH B. WHINERY, Grand Rapids, Secretary.
REUBEN PETERSON, Grand Rapids, Orator.

SECRETARY'S MINUTES.

FIRST DAY, THURSDAY, JUNE 4th.

2 O'CLOCK P. M.

In the absence of the chairman, Dr. E. G. Minar, who had removed from the State, the section was called to order by Dr. H. W. Longyear, and, on motion of Dr. Eugene Boise, Dr. N. W. Webber was elected chairman for the meeting.

The following papers were read and discussed:

I. The Treatment of Pelvic Suppuration by Abdominal Section with Hysterectomy, J. N. Martin, Ann Arbor.

II. The Treatment of Pelvic Suppuration by Abdominal Section without Hysterectomy, Reuben Peterson, Grand Rapids.

III. The Treatment of Pelvic Suppuration by Vaginal Hysterectomy, W. F. Metcalf, Detroit.

IV. The Treatment of Pelvic Suppuration by Vaginal Incision and Drainage, W. P. Manton, Detroit.

V. Report of a Case of Ectopic Gestation with Tuberculosis of the Tubes, Ovary and Placenta, A. S. Warthin, Ann Arbor.

SECOND DAY, FRIDAY, JUNE 5.

MORNING SESSION, 8:30 O'CLOCK.

The following papers were read and discussed:

I. The Process of Repair in the Peritoneum, C. G. Darling, Ann Arbor.

II. The Treatment of Puerperal Septicæmia, Eugene Boise, Grand Rapids.

III. Abdominal Section for Diagnostic Purposes, J. H. Carstens, Detroit.

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AFTERNOON SESSION, 2 O'CLOCK.

The first order of business was the election of officers for the ensuing year, which resulted as follows:

Chairman—N. W. Webber, Detroit.
Secretary—Joseph B. Whinery, Grand Rapids.
Orator—J. H. Carstens, Detroit.

The following papers were then read and discussed:

I. Report of Six Cases of Operative Appendicitis, W. P. Gamber, Stanton.

II. Accidents and Incidents in Abdominal Surgery, N. W. Webber, Detroit.

The following paper was read by title:

III. The Non-Surgical Treatment of Pelvic Disorders of Women, J. H. Kellogg, Battle Creek.

Adjourned.

JOSEPH B. WHINERY,
Secretary.

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TREATMENT OF PUS IN THE PELVIS BY ABDOMINAL SECTION; WITH HYSTERECTOMY.

J. N. MARTIN, M. D.
Ann Arbor.

Because I have been asked to write a short paper on this subject and have done so, I do not wish to convey the impression that I advocate abdominal section for all patients with pus in the pelvis; neither do I advocate hysterectomy for all of that nature when abdominal section is considered best.

I do believe, however, that for many suffering from pelvic suppuration the abdominal route is the best, and in not a few abdominal hysterectomy in connection with removal of the appendages.

In dealing with these cases I think the operation should be adopted or modified that will best meet the exigencies of the case, and that no iron clad rule can be formulated for all patients, regardless of conditions.

I have seen surgeons get into serious and complex trouble by endeavoring to adapt all cases to their pet vaginal hysterectomy when it seemed to me it would have been far better and safer to have adopted either the abdominal or combined methods.

The combined method has some advantages over either alone. On the other hand, those who always resort to the abdominal route as *the* method, sometimes unnecessarily mutilate tissues and unnecessarily weaken the abdominal walls.

Some enthusiasts in vaginal hysterectomy may tell us that little or no harm results from tearing the intestines or the

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bladder. I believe the immediate results from wounding the intestines (even if properly repaired) are not always good, and the more remote results are certainly not encouraging judging from my experience and the concensus of opinion.

If the adhesions are numerous and extensive the liability of wounding the viscera is greater by vaginal than by abdominal hysterectomy, and if they are torn, or if already there exists an opening into the bowel, the rent can be more perfectly repaired in abdominal section.

If the injured viscus is left to nature's efforts, the healing process is slow and there is usually a larger amount of plastic deposit and perhaps stricture.

It is only within a decade or two that we have possessed definite knowledge of the causes and initial location of pus in the pelvis. Most of these patients are originally sufferers from vaginitis and endometritis and later from salpingitis, ovaritis or peritonitis, and these are caused by gonorrhœa, sepsis or tubercular bacilli.

The sooner we make this view the guiding star in our investigations or explorations, the earlier will we strike the most direct and satisfactory course.

When a tube is infected inflammation and generally suppuration follow with leaking of the contents of the tube into the peritoneal cavity, and later retention of pus, aqueous secretion or blood.

In the beginning the pus is circumscribed within the tube, but later it escapes into the peritoneal cavity and the inflammatory process extends to the ovary, intestines, peritoneal side of the uterus and bladder. Inflammation of the fallopian tube at first is confined to the mucous membrane but ultimately all layers of the tube are involved, and there is infiltration of exudate and microbes into the surrounding structures and all partake of the same pathological process.

With the uterus in the early stage, the uterine mucous membrane alone is infected, but subsequently the submucous and all the structures of the organ are permeated with microbes, and then it is no longer the original uterus but an altered mass of abnormal structures, and should be removed

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with both appendages when they are so altered as to necessitate removal.

The discussion of the subject alloted to me is naturally divided into:

First. The advantage of hysterectomy in selected cases of pelvic suppuration;

Second. The advantages of abdominal section in the same when hysterectomy is deemed best.

As to the first, I should say the uterus should be removed:

(a) When both tubes are involved to the uterine ends.

(b) When there is a mass of adhesions about the uterus so the uterine peritoneum is considerably mutilated in the separation of adhesions.

(c) When the intestines, uterus, ovaries and tubes are bound together by adhesions and much infiltrated, and especially when there are multiple pockets of pus.

(d) When there is suppuration in connection with tumors of the uterus.

(e) When the uterus is considerably enlarged or there is purulent endometritis, and both appendages should be removed.

I have tried all kinds of operations for pelvic suppuration and all kinds of hysterectomies, and when we consider the best interests of the patient in the years to come I believe total extirpation of the uterus in cases with general involvement is an ideal method, as it gets rid of the diseased organs and affords good drainage.

We should endeavor to save patients in the present, and also to keep them as free from suffering in the future as possible.

Permanent results should be sought. The location of the pus and the condition of the patient may contra-indicate a radical operation at first.

It might be best to aspirate or drain from below for immediate relief and perform the radical operation later.

Dr. J. M. Baldy (before the American Gynecological Society) said:

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(1) The uterus is not essential after both ovaries and tubes are removed.

(2) Many cases not cured by double ovariotomy are cured by the same plus hysterectomy.

(3) Hysterectomy does not increase the death rate.

(4) Retention of the uterus is dangerous to the patient on account of the weight and tendency to hemorrhages, cancer and tubercle, especially when the uterus is enlarged.

Some of his propositions have been proven and some are held sub judice. I cannot corroborate all of them at present.

When the uterus is removed with the suppurating appendages the infected cornua are not left to subsequently cause trouble, but when the appendages are removed and the uterus remains, there is liability of suppuration at the stumps; and further, when the uterus is much diseased it does not recover itself and is a focus of infection.

When the uterus is totally extirpated there is much better drainage. I regard this of great importance when pus sacs rupture and pus escapes into the peritoneal cavity, or when the tissues about are infiltrated and permeated with microbes. We then get all the advantages that can be gained by vaginal hysterectomy. Reported cases prove that a less number are permanently cured without hysterectomy, and more return for treatment when the appendages are removed and the uterus left.

As to the advantages of the abdominal route:

First. We have a decidedly better opportunity to examine carefully and learn the relations of the structures and can conclude more intelligently what course is best and what structures or organs should or should not be removed.

We are working in the light with abdominal section and the Trendelenburg position.

The hands and eyes work together which is a decided advantage and makes the operation less difficult.

Second. If the bowel or bladder is torn, or if there is an opening already, it can be properly repaired.

Third. There is less liability of serious injury to the organs, because in separating adhesions we can test different parts and work along the lines of least resistance.

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Herniæ generally occur after drainage through the abdominal wound. When the uterus is wholly removed it is not necessary to drain from above, and herniæ seldom occur.

It is impossible in complex cases to make a diagnosis of relations when the viscera are matted together until an opening is made through the abdominal walls and the trained hand and educated eye can enter, and as every experienced gynecologist knows it is only too difficult many times then.

In addition to many other complex combinations I have had four cases in which the appendix and cæcum were involved in the mass of adhesions.

Dr. Price of Philadelphia, says: "The unrecognized and unrepaired fistulas to the number of five or six per cent. is alone sufficient for total rejection of the infra-pubic or vaginal route as one of the most imperfect, inefficient and unsatisfactory methods practiced in gynecology." While I am unwilling to subscribe to this as a whole, there is much truth in it, and especially when the omentum, bowels, bladder and uterus are bound together by adhesions, for then much more can be done with less injury by the supra-pubic route.

Dr. Vineberg in operating upon a patient at the Post-Graduate school in New York, for pelvic suppuration, began a vaginal hysterectomy and was obliged to finish with an abdominal. Although he is a strong advocate of vaginal hysterectomy, in his remarks he said: "As we perfect our experience in this method we will find it necessary less often to resort to abdominal section, but we should never forget that the abdominal route is open for difficult cases." I have had the same experience with several patients.

The combined method has several advantages over either alone in certain conditions. By incising the vaginal vault per vaginam anteriorly and posteriorly, separating the bladder and bowel and clamping and cutting the lower segments of the broad ligaments, the abdominal work is made easier and shorter, and thus the viscera are left exposed less time to the air. It gives one decided advantage, especially with those patients with suppuration in connection with uterine tumors.

Dr. Polk of New York, who is decidedly in favor of vaginal

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hysterectomy, and he has done much good work, says: "By abdominal section the operator has an easier route and better opportunity for demonstration, but the patient has a smoother course and more perfect recovery by vaginal hysterectomy."

In my opinion the concensus of experience proves that the supra-pubic method gives the operator an opportunity to examine more thoroughly, operate more intelligently, and carry out general surgical technique more scientifically.

As to how to perform abdominal hysterectomy I have no new method of my own to advocate. I combine various points and principles learned from experience or gleaned from others, and utilize them according to the indications to be met.

First. I make an incision through the abdominal wall long enough to afford a good opportunity to see as well as to feel.

Second. Utilize the Trendelenberg posture.

Third. Separate adhesions and liberate structures.

Fourth. Remove diseased structures.

Fifth. Close all openings so as to leave as few exposed surfaces as possible.

Sixth. Irrigate if septic material has gotten into the peritoneal cavity.

Seventh. Drain per vaginam with glass tube or gauze pro re nata.

In the dissection I first look for some portion of the reproductive organs that I can recognize and then work in different directions out into the field of the unknown.

Sometimes I work from one side of the uterus toward the fimbriated extremity of the tube and ovary and sometimes begin at the distal end and work toward the uterus, ligating bleeding points and keeping close to the structures to be removed, dissecting with my fingers or a blunt instrument.

When the tubes and ovaries are liberated, generally the most trying part is done and the hysterectomy is begun.

When the adhesions are not too extensive and obliteration too complete, ligate the broad ligament (so as to include the ovarian vessels) outside and below the ovary and tube and

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incise the upper section; then incise the peritoneum from side to side anterior and posterior where reflected upon the uterus from the bladder and bowel; strip both flaps down to the vaginal wall; draw up the uterus to the left or right after separating the appendages on the opposite side; then ligate the uterine vessels and lower section of broad ligament on that side and tip uterus to the opposite side and proceed the same.

Now draw up the uterus and cut the remaining portions of the broad ligaments and vault of the vagina by a circular incision; ligate bleeding points; stitch the anterior peritoneal flap to the anterior vaginal wall and the posterior flap to the posterior vaginal wall as in vaginal hysterectomy. Coapt all edges of the peritoneum so as not to leave exposed surfaces for new adhesions to the viscera.

Irrigate if the peritoneum is soiled and pack iodoform gauze (or gauze plus a glass tube) into the opening into the vagina to support tbe viscera and so it can be removed from below, and then pack the vagina sufficiently to hold the first gauze in place. Complete the toilet and close the abdominal wound.

Many patients that would be easy to operate upon in the beginning of the pathological process become more and more complex as time elapses. The sooner a suppurating center is eradicated the more perfect the results. Pus with microbes will not be confined within tissue domain. It is ever aggressive. It is a prisoner that constantly rattles its chains and beats the walls of its cells.

I trust the period of tinkering with pus in the pelvis will soon pass, and it is already a thing of the past with those progressive gynecologists who are abreast of the times.

The more one studies the anatomy and pathology of the pelvic tissues the more positive he becomes in the opinion that treatment in these cases to remove the cause is necessary.

Aspirating the tubes and squeezing the pus into the uterus is only tinkering. We must get rid of all of the pus and necrotic and microbic tissue.

Eye water is good for certain kinds of sore eyes, but to apply it to an eye that contains a cinder would be fruitless.

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Remove the cinder and the eye will recover without the eye water.

After an experience with several hundred operations involving the abdominal and pelvic peritoneum, and observing the results of others, I am convinced that all patients are not cured by operation.

If it were true that all that escaped the grave soon after operation were perfectly restored to health, most brilliant would be the result.

Thousands of patients have had infected tubes and ovaries removed, and well and scientifically removed, according to the most modern technique, and many have been benefited; but all honest gynecologists will admit that far too many of these patients have not made recoveries satisfactory to either patients or operators, and especially has there been a large percentage among those whose pelvic and lower abdominal organs have been involved in old and extensive snppurating processes.

In my opinion the imperfect recoveries, unsatisfactory and sometimes very bad results, are generally due to two causes:

(1) A uterus has been left behind that is past redemption and acts as a focus of infection. It was permeated throughout with microbes.

(2) The tissues about the uterus are also deeply infected and need thorough and long continued drainage.

Both of these can be effectually accomplished by removal of the uterus in such cases as have been previously cited.

When this is done the number of unsatisfactory results will be diminished and the operators will receive fewer letters bearing tales of woe and a less number of patients will be obliged to return for treatment.

The same suppurative process may yield to quite different treatment, in the early stage, from what would be absolutely necessary when the tissues have become deeply infected and much altered from the normal.

Even if it is not of long standing I believe it is better and safer to remove the uterus if it is suppurating and the tubes are both infected to the cornua of the uterus. For if the

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uterus is left the stumps will contain germs that will multiply in the favorable soil and attack the patient during the coming years. We should seek not only to keep down the death rate, but also to keep down the rate of suffering. It is not successful and honest surgery to strive to reduce the death roll to a mininum unless at the same time the living are made as comfortable as possible. Better that a few more die after operation, if it must be so (and that I do not admit) and have those who do live, live better and happier.

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TREATMENT OF PELVIC SUPPURATION BY ABDOMINAL SECTION WITHOUT HYSTERECTOMY.

REUBEN PETERSON, M. D.,
Grand Rapids.

For the purpose of this discussion the term "pelvic suppuration" will be restricted to purulent or cheesy collections within the tubes or the ovaries, with or without an accompanying involvment of the peritoneum and cellular tissue. The true pelvic abscess or a purulent inflammation of the pelvic cellular tissue following puerperal infection without involvement of the tubes and ovaries will not be considered.

Our subject will naturally be treated from two standpoints:

1. What cases of pus in the pelvic should be attacked by the abdominal route?

2. Provided that the abdominal route is indicated, in what cases will removal of the uterus be demanded?

The work of Pean, Jacobs and others in the treatment of pelvic suppuration by vaginal hysterectomy has been productive of a great deal of good. It has shown what can be done by the vaginal route if enough time be spent in acquiring a most difficult technique. It has demonstrated the possibility of vaginal exploration for diagnostic purposes, and finally it has brought prominently to our attention a fact long known but of recent years somewhat lost sight of, that with a patient *in extremis* from long continued pelvic suppuration, evacuation of the pus should be sought through the vagina rather than through the abdomen and thus time be given the patient to recuperate before the more radical operation be resorted to. But like all surgical procedures which have given good results in the hands of experts, the vaginal operation has

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been employed too frequently and in unsuitable cases. It has become almost a fad in some localities, so that we hear of men who have won enviable records as abdominal operators giving up the suprapubic route and working entirely from below.

Not that I would do away altogether with these extreme views or methods. They answer their purpose in calling attention to the claims of their adherents and enabling the surgical world to select for permanent use what is really good and lasting.

In the treatment of pelvic suppuration the abdominal route should be chosen:

1. Whenever there be a chance of applying the principles of conservative surgery.
2. Whenever bilateral pus sacs are present and complete enucleation be desirable.
3. Whenever the pus points high up in the abdominal cavity.

1. CONSERVATIVE SURGERY THROUGH THE ABDOMINAL ROUTE.

Granting all that the advocates claim for the vaginal route, there is little doubt but that the suprapubic method offers better opportnnities for the application of methods tending towards the preservation of the whole or part of the appendages. This is especially true where there exists a decided collection of pus in the tubes or ovary on one side and a doubtful condition upon the opposite side. Here the advantages of an abdominal incision for the inspection of the doubtful appendages are marked. The appendages on the less affected side are usually bound down by adhesions from former attacks of pelvic peritonitis even after there be no formation of pus. The abdominal route and, if need be, the Trendelenberg position, enables the operator not only to feel but to see the adhesions. In this way the latter may be broken up with but slight impairment of the integrity of the tube or ovary. As Baldy stated recently before the Philadelphia Obstetrical Society, a majority of the cases of inflammatory pelvic conditions will not reveal fluid pus within the

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appendages. The pus has in many cases become cheesy and the tube wall thickened by repeated attacks of pelvic peritonitis. The uterus may be fairly movable, but the appendages, one or both, will be bound down to the pelvic floor by dense adhesions. It requires the greatest judgment, acquired only by experience, to determine which tube and ovary when released from their adhesions can be safely left. How often have we debated this question upon the operating table with the released tube and ovary between our fingers, and, in more than one instance, where it was deemed best to leave the appendages on one side, the result has proved the wisdom of the decision. Can any one say that this decision could have been arrived at as well had the enucleation been performed through a vaginal incision? Those who have operated by both routes, who have seen the difficulties attendant upon the breaking up of dense adhesions, will not hesitate in their choice of procedures when there is a chance of preserving some portion of the appendages.

2. WHENEVER BILATERAL PUS SACS ARE PRESENT AND COMPLETE ENUCLEATION IS DESIRABLE.

It is my firm conviction that clean pelvic surgery should be practiced whenever parcticable. In other worde, whenever it seeme desirable to enucleate a pus tube instead of incising and draining, every particle of the diseased wall should be removed. This can be accomplished much better and with less danger to the adjacent organs by the abdominal than by the vaginal route. A careful study of the work of the best operators by the vaginal route will show many incomplete operations. The purulent tubes and ovaries are removed whenever possible, but many are left behind and are a menace to the patient ever afterwards. The walls of these abscesses are foreign bodies and have no place in the pelvis.

In inflammatory pelvic conditions bowel adhesions are the rule, not the exception. These can be treated much better from above. In fact, according to the statements of the vaginal operators, if the bowel be opened high up in the attempt to separate the adhessions, the abdomen must be

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opened for the repair of the rent if the general peritoneal cavity has been entered. An abdominal operation does not merely consist in the enucleation of the pus sacs. The intestines may be adherent to the omentum, uterus and one another, and a complete operation means the releasing of these adhesions so that future suffering may be avoided.

In not a few instances of bilateral pelvic suppuration the appendix is involved. In case of this complication the vaginal operator is decidedly handicapped. The condition either escapes his notice or if discovered it cannot usually be safely dealt with save by an abdominal incision.

3. WHENEVER THE PUS POINTS HIGH UP IN THE ABDOMINAL CAVITY.

Occasionally we meet with an exception to the general rule that a pus tube is to be found resting upon the pelvic floor and easily accessible through the cul-de-sac of Douglas. It has been my experience that in pyosalpinx and ovarian abscess following childbirth the pus sacs are situated high up in the abdomen and are practically inaccessible through the vagina, unless a comparatively unaffected pelvic cavity be traversed to reach them. These cases should be treated by abdominal incision and the pus sacs enucleated or drained according to the condition of the patient. For in many instances these large abscesses which point high up in the abdomen occur in women weakened by severe septic absorption which renders enucleation extremely hazardous. In such cases incision and drainage will be demanded and a recourse be had later to the radical operation. I shall leave to those to whom that part of the discussion has been assigned the description of the cases of pelvic suppuration which should be attacked through the vagina and pass to the second division of my subject, namely: *Provided that the abdominal route be indicated, in what cases will removal of the uterus be demanded.*

If a uterus be so diseased that its retention after bilateral removal of the adnexa is a barrier to complete restoration to health, it certainly is good surgery to remove it at the first

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operation. The true surgeon is not operating according to any fixed rule. He is resorting to the knife for the cure of his patient and the preservation of as many organs or as much of any one organ as is consistent with the well being of his patient. His judgment should be unbiased by a predetermination to apply any fixed rule to all cases. If the rule does not fit the particular condition present so much the worse for the former. The interests of the patient are paramount. For this reason it is not good pelvic surgery to establish a universal rule that whenever the appendages are removed for bilateral inflammation the uterus should also be sacrificed; for this rule, if strictly enforced, will surely conflict with a fundamental surgical maxim, that no organ should be sacrificed except upon well established pathological grounds.

Experience has shown us that many of our pus cases requiring bilateral removal of the adnexa do not regain their health; that these patients suffer from purulent uterine discharges, from metrorrhagia and from severe reflexs ymptoms arising from the diseased uterus; and that these symptoms persist in spite of curettage before and after the abdominal operation. On the other hand we find that there are many recoveries, complete restoration to health with no persistent uterine or reflex symptoms, when purulent collections within the appendages have necessitated their removal. To my mind it is simply a begging of the question, an intellectual shirking of a difficult surgical problem, to adopt the universal rule that the uterus should be removed whenever both appendages have been sacrificed. Polk and others claim that the uterus under these conditions is a useless organ and should therefore be sacrificed, because some cases fail of cure without this additional procedure.

We have passed beyond the developmental stage of hysterectomy. The operation has been so perfected that in the hands of experts the mortality is not increased over that attendant upon bilateral salpingo-oophorectomy. On the other hand so much better in my experience is the convalescence in cases where the uterus has been removed that it is

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a temptation to so do in every case. But the conservative surgeon must needs hold his hand. We should not talk too lightly about the functionless uterus after its appendages have been ablated. There is a possibility that its importance and influence over other parts of the body is but little understood at the present time and that future investigations will make us repent having sacrificed the organ except for the strongest pathological reasons.

Removal of the uterus means that we have no hope that the less radical measures of treatment of this organ will prove of avail. I do not believe that we are willing to make this acknowledgment in every case where both appendages require removal. Combined clinical, pathological and bacteriological investigations would soon place us in a position where we can decide upon the operating table which case will require hysterectomy and which will not. The recent work of Wertheim, Doderlein, Werth and others has greatly increased our knowledge of the origin and course of endometritis. It has demonstrated that gonorrhœal endometritis especially is a most serious disease, both from its tendency to spread to the tubes, ovaries and pelvic peritoneum and also because of the frequency with which the muscular wall of the uterus is affected. But I am convinced that the position of Schauta is untenable when he claims that all of the internal female generative organs should be sacrificed when it can be shown that a pyosalpinx is due to gonorrhœa. Yet at least he is more logical in his reasoning than some other operators, because he frankly admits that in the presence of gonorrhœal endometritis we are powerless to save the appendages on the opposite side. The same men who would advocate the removal of the uterus when both sets of appendages have been ablated would not urge or practice hysterectomy when one side is unaffected, even though a history of gonorrhœa could be clearly proved. Yet if the endometritis and metritis can be cured in the one case, why can it not be cured in the other? For my own part I do not believe we are powerless in the presence of gonorrhœal disease of the uterus and appendages to affect a cure of the former by no means short

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of the radical operation. My own clinical experience leads me to think that a thorough removal of the endometrium by the sharp curette and subsequent drainage will cure many cases of endometritis proved beyond a doubt to be gonorrhœal.

There are but four classes of cases where I would consider it justifiable to remove the uterus where both appendages have been sacrificed for purulent disease.

1. When the uterus is so diseased that less radical procedures than hysterectomy probably will fail to relieve the patient of subsequent suffering.

2. When the appendages are tubercular. In these cases we are dealing with a serious disease which should be treated by the most radical measures.

3. Where the peritoneal covering of the uterus and even the body of the organ itself has been badly injured by the enucleation of the purulent appendages. Here the danger of subsequent bowel adhesions and intestinal obstruction might decide one to perform hysterectomy.

4. In some bad cases of pus tubes it may become necessary to remove the uterus for the purpose of securing free vaginal drainage. In all other cases I would advocate a thorough curettage and retention of the uterus

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THE TREATMENT OF PELVIC SUPPURATION BY VAGINAL HYSTERECTOMY.

WILLIAM F. METCALF, M. D.,
Detroit.

I willingly complied with the request of the secretary of this section to prepare a paper upon the treatment of pelvic suppuration by vaginal hysterectomy, because my experience leads me to sustain the claim of some other operators to the following advantages for this operation when compared with that of removal of the uterine appendages by coeliotomy for the same conditions. (Some of these advantages may be claimed for it also when comparing it with abdominal hysterectomy.) 1. Dangers of hernia and of intestinal adhesions to the abdominal scar are eliminated. 2. No part of the septic uterus is left to cause infection or reflex disturbances, or which may become bound to adjacent organs by organizing adhesive bands. 3. More satisfactory drainage is afforded. 4. There is less danger of soiling the peritoneum and therefore less danger of peritonitis. 5. There is less danger of concealed hemorrhage. 6. Less pain. 7. Less danger of shock. 8. There is no need for curettment and subsequent treatment of the endometrium. 9. The convalescence is more rapid. 10. The subsequent health of the patients is, generally speaking, better.

I am aware of the fact that in opposition to any arguments which may be advanced in favor of the vaginal route a long array of statistics, the result of the perfected methods of operation by coeliotomy, may be shown. But the claim that by the vaginal method the subsequent health of the patients is better will necessitate a more careful study and report of

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the subsequent condition of patients who pass through the hands of laparotomists.

In many of these cases, however, the malnutrition and anæmia are so marked and various neuroses so thoroughly established that a cure should not be promised, yet I often find the restorative power of the life force surprisingly great when all irritations are removed from the nerve system of nutrition.

Hysterectomy may not be found necessary where the suppuration arises from parametritis due to infection entering the cellular tissue through a laceration at the time of abortion or labor, or in any case where one tube is thought to be healthy. I believe however where the intra-pelvic inflammation has advanced to the formation of pus, both tubes generally have to be sacrificed. The mucous membrane lining the tubes being continuous with and practically the same as that which lines the uterus, pus formation in the former is always preceded by an infectious inflammation in the latter, the cure of which is found to be difficult if not impossible; moreover, it often extends to and produces degeneration in the sub-lying muscular tissue which is incurable and necessitates a removal of the organ. When the tubes and ovaries are removed, the uterus having lost its function becomes a foreign body and is eliminated by nature if her power to do so is not counteracted by the fixed pathology. Why should not the surgeon aid her, especially since he may do so without adding to the risk to life? Where the dissection is carried close to the muscle surface I have not found the vaginal passage shortened as has been claimed by some. I at first thought that vaginal hysterectomy was applicable to but a few conditions, and owing to my greater familiarity with abdominal section I would only occasionally try the vaginal method. As time passed varied conditions were successfully treated by this method until now I believe, in connection with pelvis suppuration, that it is advisable in cases of abscess of the ovary or broad ligament which is generally ruptured in the freeing of adhesions; in cases of septic hæmatomata where the tube on the opposite side is diseased; in cases of septic parametritis

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due to trauma, where the tubes are embedded in the abscess or where the cellulitis is secondary to peritonitis, the infection having passed through the walls or fimbriæ of the tube. In some of these cases the exudate from both sides of the peritoneum has fixed the uterus and formed a wall which separates the pelvic from the abdominal cavity. To the upper side of this barrier may be attached intestines and omentum, and beneath it in the exudate are found numerous foci of suppuration which can be safely drained only from below. In some cases, as a result of the evacuation of a pelvic abscess, the organs are held in mal-position by organized bands of adhesion, causing constant invalidism. In such cases this operation is also applicable and advisable, since if it were possible pregnancy in this condition is not desirable. Child-bearing is an important but it is not the only function of woman.

In certain cases where neoplasms complicate suppurative diseases of the pelvis, or where there is marked subinvolution in connection with extensive adhesions and an abnormally small vaginal passage, the operation by abdominal section is to be preferred.

I consider the method of performing vaginal hysterectomy very important. The abdomen should be prepared as for laparotomy that there may be no delay if complications arise necessitating its being opened. The pubis should be shaved and the vaginal passage washed with soap and then with a 1-4000 bichloride of mercury solution. The cervical canal should be dilated, the endometrium thoroughly curetted and the uterine cavity packed with guaze to prevent the escape of sepsis into the peritoneal cavity in cases where the fundus uteri is turned out through the vaginal incision, or where it is found necessary to split the organ. If the perineal muscles be very tense they may be incised in the median line and sutured at the close of the operation. Incision should then be made around the cervix, through its areolar covering, and dissection carried upward upon the surface of its muscle to a point a short distance above the internal os. If the uterus be moveable the abdominal cavity should now be entered anter-

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iorly and posteriorly, the fundus turned out through the anterior incision if possible, and the dissection carried beneath the attachment of the broad ligaments toward the cervix. The uterus removed, ample room is afforded by the use of retractors for the freeing of the tubes and ovaries from their adhesions and natural attachments. If arteries are cut they should be ligated as the dissection proceeds. If capillary oozing be excessive owing to error in dissection or to degeneration of the uterine tissue, the uterine and ovarian arteries should be ligated or clamps should be left in place. Intestines, if adherent to the uterus, will come down with it when the adhesions may be easily broken; or if the bands be firm it may be well to leave a severed portion of uterine covering adherent to the intestine. After the adhesions are broken the tubes may be pulled down and removed by cutting close to their tissue. Ordinarily the bleeding from this procedure is slight. It may be found impossible to get away all the necrosing tissue; if so, the cavity from which the uterus is dissected should be kept open that free drainage be maintained until suppuration ceases. Abscess of the ovary or broad ligament may be broken up and the cavity thoroughly washed with a sat. sol. of boracic acid, using a douche nozzle bent at the point that the stream may be thrown backward, and thus the danger of forcing pus into the abdominal cavity be lessened.

Where the corpus uteri is fixed in inflammatory exudate, the upper wall of which separates the pelvic from the abdominal cavity, the dissection should be carried beneath the cellular covering of the whole organ. The septic foci lying in the connective tissue are broken into and discharge their contents during the dissection. Were there suspicion of malignant infiltration this method would not be advisable. The abdominal cavity is not entered. These are the patients that have suffered long of sepsis, in whom the heart, liver and kidneys are undergoing degeneration. The tearing up through an abdominal incision of this inflammatory fortification built against entrance of germs into the abdominal cavity, and to which the intestines and thickened, reddened, friable omentum

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are perhaps adherent by organized exudate, is very often attended by shock, and those who survive the shock are in danger from the outset of peritonitis, the necrosing tissue containing in some cases the most micro-organisms. If the abscess be drained through the abdominal incision the wound may become infected, necessitating a tedious convalescence. In these cases it is well to respect the barrier nature has builded, and in drainage to respect the law of gravity. It would appear to me more logical in some cases to remove the uterus, leaving the adnexa, the necrosing tissue around which being thus afforded free drainage, than to remove the adnexa and leave an inflamed uterus surrounded by infected areolar tissue.

The two objects we wish to attain are the saving of life and the restoring to normal rythm of each and every organ, and each surgeon doubtless gives preference to that method which appeals most strongly to his judgment.

I have treated only fifteen cases of pelvic suppuration by vaginal hysterectomy which I now will report as briefly as the above claims permit. These cases differ from each other so markedly that they each represent a distinct class.

CASE 1. Mrs. B., aged 27; had one tube and ovary removed in 1892, the other being fixed in organized exudate was not disturbed; pain in the head, mueh pain and soreness in and around the uterus, continued ichorous discharge from the endometrium, constant pain in the bladder and desire for frequent micturition, obstinate constipation. September 6, 1893, I removed the uterus, broke up the adhesions beneath the remaining tube, affording good drainage, but not being able to free it from above left it in place. No clamps or ligatures were required. Her highest temperature was 99.4°. Seven days later she was taken to her home three miles distant. It is unwise to permit a patient to be moved so soon after such an operation. The recovery of this one, however, was not apparently retarded by it. Necessity compelling, she began three weeks later to use the sewing machine. She came to my office on a bicycle in December, 1894, to say that she was perfectly well. In the winter of 1895 a hernia

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appeared where the abdominal incision had been made in 1892. At this time she was suffering from nymphomania. I know not whether the hernia was the cause or not. However the ruptute was repaired and she wrote me in February, 1896, saying that her erotomania had disappeared and that she was well in every respect.

CASE 2. Mrs. L., age 26; insomnia, pain in the ovaries and cardiac region, dyspepsia, rapid pulse, suffocation.

In operation February 2, 1894, I found a laceration extending into the corpus uteri, metritis and abscess in the left ovary, right ovary completely degenerated. No ligatures or clamps were used. Her highest temperature after operation was 99.6°, highest pulse rate 128. She left the sanitarium in two weeks. I saw her ten months later when she said she had gained much in weight and was well. I saw her May 20, 1896, two and a half years after operation, when she said that she had not needed the services of a physician since except for sore throat.

CASE 3. Mrs. B., age 32; a suppurating fibroid of the uterus. She had shown symptoms of sepsis for several weeks. The tumor was intra-mural and weighed five pounds; the abscess was near its center. May 26, 1894, I made an abdominal section, freed the tubes and ovaries, ligated the ovarian artery upon each side, dissected downward to a point below the tumor, where I amputated the body of the organ. I then completed the operation by the method of vaginal hysterectomy above described. By a continuous suture of kangaroo tendon the peritoneal edges were approximated, leaving no wounded surface within the abdomen. Two ligatures only were used in this operation. Her highest temperature was 100° and highest pulse rate 100. Her convalescence was rapid. Report taken February 1, 1896; she was well except for hemorrhoids.

CASE 4. Mrs. D., age 31; had had several abortions. In the last she had carried a dead fœtus of about three month's development for about four months, flowing slightly but constantly. There was constant, extreme tenderness over the copus uteri and ovarian regions. Besides the ordinary

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reflex symptoms chorea had developed. Pressure upon the ovarian regions or the passing of a sound would always precipitate an attack. Vaginal hysterectomy in October '94 disclosed degeneration of the uterine muscle and double pyosalpinx. No ligatures or clamps were used. Highest temperature was 99.6 and highest pulse rate 106. She left Grace Hospital in thirteen days. The choreic movements dissapeared at the time of operation, but reappeared in milder form several weeks later. The attacks recurred at longer and longer intervals, yet her legs were so weak that with difficulty she could walk across the floor. Gradual improvement came throughout the summer of '95 and the winter of '96. Report taken May 19, '96; she has gained much in flesh; appetite and digestion is fair; is still constipated; the chorea is cured; strength in legs gradually increasing; can do her own housework and walk a distance of several blocks.

CASE 5. Mrs. P., age 26; constant pain in left ovarian region and over the uterus, constipation, coated tongue, backache, headache and melancholia. Diagnosis, double pyosalpinx and metritis. I performed vaginal hystero-oophorectomy November 4, '94. Her highest temperature 101° and highest pulse 104. No clamps or ligatures were used. Report January 1st., '96 showed her to be well except tor hemorrhoids which I removed on February 3rd. Report of March 6th, she was well in every respect.

CASE 6. Mrs. D., age 32. In 1892 I removed the uterine appendages for double pyo salpinx. Suppuration had extended into the cellular tissue. The parametritis never wholly subsided. In November '94 she presented the following symptoms. She had several attacks of hystero-epilepsy at time in the month for the menses; coitus or passing a sound usually brought on a condition of catalepsy. December 5, '94, I found her talking incoherently to imaginary beings and at times screaming because of agony caused, as she said, by some one running a hot iron up her side towards her heart. She had been acting in this manner for nearly a week. I prevailed upon her relatives to send her to Grace Hospital instead of to an asylum as they wished to do. On

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December 10, I removed the uterus, finding its muscular tissue degenerated almost to the point of sloughing, there being a free opening at the left cornu into the peritoneal cavity. No ligatures or clamps were required. Her highest temperature after operation was 99° and highest pulse-rate 96. No medicine was given. She slept well after the operation. She lay in a passive, weary condition, but apparently rational, until the 25th, when symptoms of insanity returned, but only for a few hours. She continued to improve. A year later, in November '95, her husband reported her well mentally and physically.

CASE 7. Mrs. D., age 45; constant pain over the spine and across sacrum, pain and tenderness over both ovarian regions and much subinvolution and tenderness of corpus uteri, insomnia, indigestion, and constipation. Diagnosis, double pyo salpinx and metritis. April 13, '95, at Grace Hospital I performed vaginal hystero-oophorectomy. No clamps or ligatures were needed. Her recovery was uneventful, no anodynes being required. In September, '95 she contracted typhoid fever but made a good recovery in about five weeks. April 1st, one year after operation, she reported herself well in every respect.

CASE 8. Mrs. W., age 32. For six weeks her temperature had been ranging from 100° to 104°. Much severe pain in pelvis and across lower abdomen, much nausea and vomiting, uterus immovable, pelvis filled with exudate. I could not detect fluctuation, but subinvolution and endometritis were marked.

Operation, vaginal hysterectomy, January 16, '96.

The connective tissue around the uterus was found infiltrated with pus. Abscesses of considerable size were found in the region of each tube and in the posterior cul-de-sac. The individual tissues could not be distinguished. I dissected the uterus out beneath its covering, breaking into the pus cavities as I proceeded, but not disturbing the inflammatory wall above, that is, not making entrance into the abdominal cavity except when I first passed the sound it went through the friable fundus of the uterus. I removed as much of the

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necrosing tissue as I thought wise and douched the cavity thoroughly with boracic solution. Two ligatures were left in place. Her temperature was 104.6° the day before operation. The day after operation it was normal and never again exceeded 99°. The purulent discharge continued for three or four weeks. On the twelfth day after operation a profuse hemorrhage began, probably caused by the sloughing. It was controlled by placing a wool tampon covered with silk into the cavity from which the uterus was taken. She came to my office May 1st and said she had been able to ride on the street cars without pain for about a month, that her appetite and digestion were good and bowels regular, that she was well, that nearly all her hair had fallen out during the winter but was coming in again now.

CASE 9. Mrs. N., age about 44; pain and tenderness across pelvis and in back, diarrhœa, rapid pulse ranging from 120-140. Diagnosis, pyosalypinx.

Vaginal hystero-oophorectomy December 28, 1895. Two or three bleeding points were ligated. Pulse at close of operation 96. Her highest temperature was 100°. As regards pain and indigestion her improvement was rapid. Her muscular system still remains weak.

CASE 10. Mrs. L., age 35. Symptoms, headache, indigestion, nausea, gastralgia, tympanitis, pain in the back, cold extremities. Diagnosis, double pyosalpinx and internal hemorrhoids. October 1, 1895, at Grace Hospital I performed vaginal hystero-oophorectomy. An abscess was found in one broad ligament containing nearly a pint of pus. She made an uninterrupted recovery, her temperature not exceeding 100°. Her convalescence was rapid. February 4, I removed the hemorrhoids. April 1, she said that her health had never been better.

CASE 11. Mrs. R., age 33. Symptoms, dyspepsia, hysteria with suicidal tendency, much pain and tenderness in left ovarian region, metrorrhagia for three years. February 4, 1896, at the Detroit Sanitarium I removed uterus and tubes per vaginam. Two ligatures were left in place. Firm and extensive adhesions were found upon both sides, an abscess in

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the right ovary about the size of a lemon, a smaller abscess upon the left side, and a tube much enlarged and firmly adherent to the intestines and to the pelvic wall. All the tubal and nearly all the necrosing tissue was removed. Pulse at finish of operation was 76. Her highest temperature was 100°, and highest pulse rate 104. She sat up on the eleventh day. Report from her physician May 21; all her old symptoms have entirely disappeared; she has become bright and cheerful; appears perfectly well mentally and physically.

CASE 12. Mrs. P., age 34; dysmenorrhœa, constant pain across pelvis, muco-purulent discharge from uterus, headache, dyspepsia and constipation. Diagnosis, metritis and double pyosalpinx. Operation February 5, 1896. Many adhesions were found. No ligatures were required. Highest temperature 100.6°, and highest pulse rate 126. Left sanitarium thirteen days after operation. Report on March 17, 1896; she said she was well and gaining strength rapidly. On May 20, her husband said she was doing her housework and that he heard no complaints.

CASE 13. I did not get the history of this case. She had had both tubes removed. There were adhesions about the uterus. I was invited to perform vaginal hysterectomy upon her before a class. The answer to my question, "Has the urine been examined?" was "Yes, everything is all right." I found the uterine muscle degenerated and entire lack of tone in the muscles of the parts. The capillary oozing was excessive. It would probably have been better in this case fo have used clamps. The patient died four hours aftero peration. Autopsy showed that there had been but moderate oozing after the completion of the operation, but abscess of both kidneys and pneumonic infiltration of the lower two-thirds of both lungs were found.

CASE 14. Mrs. T., age 40 years; dysmenorrhœa, tenderness over the pelvic viscera, preventing thorough examination, dyspepsia and constipation. Symptoms of neurasthenia had been developing for several years. For the last two years she had been confined to her bed most of the time. Diagnosis, metritis, pyo salpinx and internal hemorrhoids. Vaginal

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hystero-oophorectomy March 14, '96. Besides the pus tubes I found an intra-mural fibroid six inches in circumference. Three ligatures were used. Her pulse at the close of the operation was 80. The temperature rose to 100° but in a few hours returned to the normal. She was convalescing rapidly and wished to return home as soon as possible, so I removed her internal hemorrhoids fourteen days after the hysterectomy. She continued to improve and left Detroit May 14th. May 19th I received the following message from her home in Rhode Island: "Mrs. T. endured her long journey well. She eats everything with impunity and is gaining strength daily."

CASE 15. Mrs. P., age 57; symptoms of neurasthenia and general pruritis. April 22, vaginal hystero-oophorectomy. I found a fibroid uterus six inches long and nine inches in circumference and a pus-tube on the left side. The vaginal passage was narrow. After dissecting up as high as I could I split the uterus, bringing down one-half at a time. Only one ligature was used. For five days her temperature did not exceed 99.4°. It then rose to 100.2°, but only for a few hours. On May 22, her physician wrote me that she was all right except for the pruritis.

The ends of the upper edges of the broad ligaments and the edges of the peritoneum were coapted by stiches in all the cases except where pus was found within the peritoneal cavity. Tampons of wool covered with silk were inserted in all cases to check capillary hemorrhage. They were removed within thirty-six hours of operation.

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THE TREATMENT OF PELVIC SUPPURATION BY VAGINAL INCISION AND DRAINAGE.

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Detroit.

Those of us who can look back over the field of medicine for two decades or more will remember with what apprehension all cases of pelvic suppuration were formerly regarded. Following the teachings of the pioneers in gynecology, especially of Nonat, the presence of pus in the pelvis then meant to the average mind one of two things, either an hematocele which had broken down and become purulent, or abscess formation resulting from inflammation of the cellular tissue about the womb. These two conditions practically represented about all the general knowledge then possessed regarding pelvic suppuration, and the prognosis in such cases was always guarded as to the ultimate fate of the patient.

By common consent "pelvic abscess" was generally let alone, to absorb if it would, or burrow and rupture if it would, and only those cases in which life itself appeared to be endangered were subjected to operative interference. For, as Thomas stated in his text-book as recently as 1878, "there are few localities in the body into which it is more hazardous to cut than this," meaning the vaginal vault; while Scanzoni pleads that the knife not infrequently failing to find the abscess cavity, the patient is thereby subjected to this additional and unnecessary suffering.

With the advent of a new gynecological era, ushered in by Tait in abdominal surgery, pelvic pathology underwent a complete revolution. Hematocele now stood for ectopic gestation, while cellulitis gave place to pyosalpinx, and every

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pelvic condition connected with the suppurative process was amenable to coeliotomy alone.

A few, among whom notably Munde, of New York, while practising and according full credit to the abdominal method, still advocated in suitable cases the vaginal route for the evacuation of pelvic pus, and gradually, as knowledge of the morbid conditions of the parturient basin and its contents increased and experience gave rise to greater confidence and to improved technique, others have been led to adopt vaginal incision and drainage in this class of cases.

At the present time the admissability of such a method is largely conceded and the question *sub judice* is as to the conditions under which it may be properly undertaken.

From my own experience in pelvic and abdominal surgery I should say that there are three classes of cases in which vaginal incision and drainage in pelvic suppuration might possibly be satisfactorily elected. I use the word "possibly" advisedly, for I am not quite certain but that in one of them at least, and perhaps in all, coeliotomy would not only be preferable, but would bring about more favorable results in spite of its additional risks and dangers. The conditions in which vaginal incision and drainage in pelvic abscess* may be desirable are:

1. Cases in which the radical operation is positively refused by the patient, or cannot be undertaken for other reason.

2. Cases in which the physical condition of the patient is such that cœliotomy if performed at the time would certainly prove most fatal.

3. Puerperal cases in which the pus is wholly extra-peritoneal.

Regarding the first class nothing need be said. In the second class we often come in contact with those who from long continued disease have become so physically reduced, or are so thoroughly saturated with the septic material emanating from the pelvic cavity, as to be incapable of withstanding

*By pelvic abscess is here meant suppuration of every kind occurring in the pelvis, whether in tumors, tubes, ovaries, or resulting from true cellulitis of puerpery, etc.

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the additional strain imposed by abdominal section. In such cases by the thorough draining away of the infectious matter per vaginam time is secured in which to build up and strengthen the patient's flagging vitality and thus to render a subsequent thorough removal of the diseased parts a comparatively safe if not simple undertaking. The decision as to method in such instances is, it must be confessed, often a matter requiring the greatest judgment and skill as well as large experience and diagnostic acumen.

A patient whom I recently saw with my friend Dr. Robbins at Harper Hospital illustrates the difficulties experienced in such cases. The woman had been ailing a considerable time and was very septic when first seen. The presence of pus in the pelvis could be readily made out by vaginal examination, and it was apparently confined to a single location. Something in the general feel of the parts, however, led me to believe that the condition was more general than could be detected by the examining finger, and I advised against vaginal incision. The abdomen was opened and several distinct and separate pus cavities were evacuated. The patient making but poor progress in her recovery, a second operation was shortly undertaken by Dr. Robbins who discovered another large abscess well up on the side. Since the evacuation of this the patient's recovery has been quite satisfactory.

In the third class of cases the vaginal method may offer many advantages over the abdominal. If the abscess is within easy reach it can be evacuated, drained and closed with a minimum of danger to the patient, and with the almost perfect certainty of ultimate complete recovery. In some cases the combined vaginal and abdominal operations have been found necessary, drainage being had from both above and below.

OPERATIVE TECHNIQUE. Before undertaking vaginal incision it is absolutely necessary that the position of the pus sac shall have been accurately determined. The patient, having been prepared for the operation in the usual manner, is placed on the table on her back. The vagina is then again

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thoroughly scrubbed and douched with an antiseptic lotion, the external parts are thoroughly washed with soap and water, shaved if necessary, and rendered aseptic. A speculum is then introduced, and the lowest place at which the pus "points" punctured with an aspirating needle. Guided by the needle a director is then pushed into the abscess, and a pair of blunt-pointed scissors or a small dilator introduced into the opening which should be enlarged sufficiently to admit the finger for the examination of the interior of the sac. The cavity should then be washed out with full strength peroxide of hydroyen solution, followed by sterilized water and an antiseptic. A drainage tube is introduced, the vagina lightly packed around the tube with antiseptic gauze, an antiseptic pad placed over the vulva and the operation is completed. The subsequent treatment consists of washing out the abscess cavity and preventing its healing.

From a description of this operation it would appear to be very easy of performance, but those who have had experience will agree with me that it is very often the contrary. There are also some dangers to be apprehended.. Puncture of an adherent intestine, the ureter or a blood vessel may occur, and more or less serious complications thus arise. One point which should be emphasized. The opening into the pus cavity must be sufficiently large to admit of thorough drainage, and should be kept patulous until the abscess walls have contracted and healed. A small opening with imperfect drainage and leakage about the tube may further increase the septic infection, and the last end of the patient thus be made worse than the first. A case upon which I recently operated is in point. The vaginal opening into a pus tube was so small that insufficient drainage took place and the young woman became deeply septic. At the time of her admission to the hospital her pulse was over 120 and the temperature high. On opening the abdomen the whole pelvic tissue was found to be in a state approaching rottenness, and the stench from the pus was anything but agreeable. In spite of thorough drainage and the most careful antiseptic precautions during the operation and afterwards this evil smelling pus continued

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to well up from the bottom of the pelvis for several days, and the abdominal wound becoming infected opened up its entire extent, but finally healed by granulation, leaving a wide, unsightly cicatrix. The patient is now in perfect health, has gained fifteen pounds since the operation, and the scar has as yet shown no signs of giving away.

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DISCUSSION ON THE PRECEDING PAPERS.

DR. H. W. LONGYEAR. I will start the ball rolling, as I believe there are a number of others anxious to follow me.

In regard to Dr. Martin's position, I think it is the correct one; that there are cases for each method that has been advocated to-day, and that a careful surgeon will make his selection of the method to be applied to each individual case. In some of them he will remove the entire organs through the abdomen. In others he will remove the organs by the vagina, and in still others he will simply remove the appendages. In some cases he may drain by the vagina without removing any of the organs.

The objections spoken of by Dr. Martin to repairing injuries to the bowel through the vaginal method are certainly very good ones, and I think should have great weight in selecting the operation. If the pus tubes are situated high in the abdomen, and examination shows tumefaction to rise well up toward the crest of the ilium on either side, I believe the abdominal method should be selected, for the reason that adhesions, when they are ruptured causing an opening into the bowel, are extremely difficult to deal with through the vagina. I had a case illustrating this a short time ago at the Harper Hospital. It was a case of large abscess of the left fallopian tube and ovary, connecting with the bowel. A diagnosis of rupture into the bowel was made, and the patient for a few days had fetid diarrhœa. In this case the tumor was situated high in the pelvis. It was not easy to get fluctuation through the vagina; in fact, I could not get it. The tumor was very high, so that I selected the abdominal method, not only because of this but because the other ovary showed no signs of disease and the uterus itself was not involved. I therefore did not consider it advisable to remove the uterus.

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In this case there was a large abscess containing nearly a pint of pus of the most fetid character, and it was dug out with the patient in the Trendelenburg position. After it was completely removed, with the patient in this position, I threw the electric light into the bottom of the pelvis and examined the bowel, and found an opening through which I could introduce my two fingers. Part of the bowel was adherent to the pelvic wall, and it would have been impossible to repair that rent through the vagina. If the operation had been done per vaginam the result would have been the development of a recto-vaginal fistula, with all the trouble that such a condition signifies. I established drainage with a glass tube through the abdominal incision, and also placed a glass tube into the anus to relieve the bowel of any pressure from flatus. The patient made a complete recovery. She had been having a high temperature every day for a month, and at the time of the operation her temperature was 104°. After operation it was reduced to normal and never rose above 1½° afterwards.

With reference to adhesions to the cæcum and appendix, particularly the appendix, it is an important matter, and I have had a number of cases in which such adhesions have taken place. When removing the diseased ovaries I have found a diseased appendix which would not have been discovered if the operation had been done by the vagina. The parts would have been torn apart and the diseased appendix not discovered. It is, therefore, a very important matter to consider in selecting the method of operating in these cases.

Dr. Martin did not give his method of closing the abdominal wound. Where hysterectomy is done it is important for us to make a larger incision than we do for simply removing the appendages, and with the patient in the Trendelenburg position the operation becomes a simple one. So the method of closure of the incision is an important matter for the reason that an improper closure in any way will almost surely result in hernia. My own practice is to close the incision by the buried animal suture. I believe it is only by suturing

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layer for layer that we prevent hernias following these large incisions.

Dr. Martin referred in his paper to the matter of the uterus and surrounding tissues being infiltrated with microbes and that this is an indication for removal of the organ. I would like to have him explain, in summing up, how he determines that this infiltration with microbes has taken place.

Dr. Peterson made the point that the high pointing of the abscess is an indication for the abdominal instead of the vaginal method. I think this an excellent point. When the mass is high in the abdomen it is better to operate by the abdominal route than by the vaginal for the reason that the adhesions can be better reached. He also made another excellent point, that the uterine organs should be removed for cause only, and that cause must be a diseased uterus itself. I believe this is good, sound surgery. I do not believe in removing the uterus simply because its attachments have been removed, and that it will not be of any further use. If I followed that line of argument I might say that it would be better also to remove the vagina. Any uterus which has not been diseased should not be removed, and the use of the curette is usually sufficient in many cases. The uterine cavity can be thoroughly curetted and appendages removed by the abdominal method.

The record of Dr. Metcalf's cases certainly proves one thing, that the vaginal method in his hands is successful. I think it is a rather remarkable record, of seventeen cases with only one death, and that due to causes beyond his control. I think he is to be congratulated on his excellent results.

The reasons given by Dr. Manton for the vaginal incision are excellent, and I do not know that I can suggest anything better in that line. I belive there are, however, but few cases where that method should be employed. It is resorted to simply for temporary benefit and not as a curative measure. I do not believe that the pus tube can be cured by simply draining it, for eventually an operation will have to be done or the patient will be an invalid from the fistulous discharge. As illus-

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trating cases of this kind where this method might be selected, I will mention briefly the history of one case which I saw about two weeks ago. I was called to the country by telephone to come prepared to do an abdominal operation, without knowing exactly what the condition was, and not being able to find out. When I arrived I found it was a case in which trachelorrhaphy had been done three weeks previously. The patient did well for a week, then began to have fever with pain. When I saw her she was apparently in a typhoid condition. The tongue was brown and dry, temperature 101° in the morning, and in the evening it varied from 102° to 104°. I found a fluctuating mass reaching from the crest of the left ilium to just behind the vagina. My diagnosis was a large pus tube with a single cavity. I thought there were not a number of cavities, as is often the case. With the surroundings in this case I made up my mind that it would be bad surgery to do an abdominal operation at this time, and so I proposed to drain the cavity and after she had recovered her strength to bring her to the Harper Hospital where I could have her in good condition for the abdominal section. This was agreed to. I told them that I would prepare the patient for the abdominal section, and that if the cavity were not drained by the incision through the vagina, then I would proceed immediately to remove the sac through the abdomen. A puncture was made directly back of the cervix. The incision was enlarged with forceps, as Dr. Manton suggested in his paper, and on putting my finger through the vaginal incision I found it entered the peritoneal cavity. The parts had not become adherent, so the peritoneal cavity was freely opened. I then washed out the cavity freely with bichloride solution 1-5000, after introducing a rubber drainage tube with a cross piece on the upper end to prevent it from coming out, and packed the vagina loosely with iodoform gauze. The next day the temperature came down to normal. I received a report a few days ago to the effect that the sac was washed out twice a day for several days, and no pus appearing the tube was removed. This case, to the ordinary observer for the time being, would seem to be a brilliant result, but the patient undoubtedly will have

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future trouble with the pus sac. I therefore believe that the operation of incision and drainage through the vagina is only a temporary one.

Dr. Manton spoke of one case in which there were a number of abscesses that were found after removing the large pus sac. Where there are a number of cavities, drainage through the vagina seems to be worse than useless, and the surgeon cannot tell before draining whether he is going to strike such a case or not.

DR. J. HENRY CARSTENS: There seems to be very little to be added to this discussion, as the papers have so thoroughly covered the ground and they have all advocated substantially the same thing. One gentleman advocates abdominal section for a certain class of cases and another the vaginal route. I think we are all agreed that there are cases in which the abdominal route is much more preferable to the vaginal, but that it requires good discrimination with judgment on the part of the operator to tell which method is the most applicable in the particular case in hand. I agree in the main with all that has been said. There are cases encountered by us where it is best to select the abdominal route. I, for my part, have laid down a kind of general rule which I would not absolutely adhere to, but which I follow with some few exceptions. When I have a woman who has borne half a dozen or more children, who is near the menopause, who has a badly lacerated uterus and pus tubes, I do not hesitate to remove the entire uterus, either by the vagina or abdomen, and I find usually that I get the best results by resorting to the vaginal route. If I have another case, say a young woman, married or unmarried, where I want to save her ovary, or a part of the ovary or part of the tube, so that she will not become unsexed, may still become a mother, I resort to abdominal section and try to save what I can. I have a patient now in the hospital in Detroit where I removed one half of the ovary and one half of the tube, leaving the other halves of these organs in place. The patient may never become pregnant. She is 27 years of age and is married, but still "hope springs eternal in the human breast," and she still has that hope left.

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I have another case of a young girl in which I took out one ovary, one tube and one half of the other tube. The chances are that she may at some time become pregnant. At present she is unmarried. If she had been forty years old I would have had no hesitancy in removing the uterus and appendages. When everything is not removed I do so with a great deal of trembling, because these cases will have trouble in the future, and I inform them that they must take the *chances of having a secondary* operation done for the sake of not having their generative organs entirely removed. In some of the cases in which I resorted to these operations in the course of four or five years the old trouble is rekindled.

Where the abscess is high up I do an abdominal section, and where there is a large fibroid tumor and, as very often is the case, complicating pus tubes I prefer this method, removing the fibroid tumor afterwards. When we have a pus tube which is difficult of removal, in some cases I would rather remove the pus tube alone, allowing the uterus to remain and remove it at some future time. If the abscess is low in the pelvis, then I treat it by the vaginal route as suggested by Dr. Metcalf, and I must say that although I was at one time prejudiced against this method, at the present time I have reached that point gradually where I think that total extirpation of the uterus, pus tubes and all, by the vaginal route gives us the best immediate and ultimate results.

During the last year I have had to perform hysterectomy in six or eight cases after abdominal section for removing the tubes and ovaries. In the first two or three cases there was adenoid degeneration of the mucous membrane present, and I thought it was simply a coincidence, but found that there were small fibroids which I had overlooked. In cases where there are marked nervous phenomena, cases with hystero-epileptic fits and menstrual insanity, where I formerly operated, I do not now do so. Heretofore I operated on these cases by removing the tubes and ovaries. Now I do not take out the ovaries and tubes alone, but also the uterus, as I look upon the latter organ as being the cause of the nervous troubles also. For that reason in all of the cases I remove the uterus,

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tubes and ovaries by the vaginal route. When I have a case of badly lacerated cervix and degenerated mucous membrane, and find that the woman has had a great many children, I hold that the vaginal operation in such instances is the easiest and quickest and best.

Here we come to a class of cases that was mentioned by Dr. Longyear, in which he spoke of being called in the country to see a woman with a badly lacerated cervix which was sewed up. We cannot warn general practitioners too often about operating for lacerated cervix. They think it is a simple thing, but they do not recognize that back of it is a pus tube, or if a pus tube does not exist, the general practitioner does not recognize the inflammation of the mucous membrane which is above the lacerated cervix. He operates on the lacerated cervix, and where the opening of the uterus was large and suitable for the purpose of drainage, he suddenly closes it up, walls in the pus, and the suppuration extends to the tube, and in a week or ten days the patient has pelvic suppuration. I make this simply as a side remark.

Where there is probable malignant disease of the uterus with a lacerated cervix, the woman near the menopause, and she has borne several children, in such a case I hold that it is better not to take any chances, but that we should make a vaginal hysterectomy and remove everything. I maintain that the uterus is no good. I cannot agree with Dr. Longyear in what he has said, because the vagina is a different organ altogether, while the uterus is entirely useless in these cases. When you remove pus tubes adherent in the cul-de-sac, and strip up the peritoneum, denuding everything, the uterus is bound to become adherent to the rectum and is a source of irritation afterwards. In a great many cases I had to stitch the uterus up in front, making a ventral fixation in order to keep it in place. I do not do that any more. I operate by the vaginal route because I know better how to operate on these cases. At one time I did not know very well how to operate, and I did my work in a different kind of a way.

I cannot agree with Dr. Metcalf in regard to what he has said about dissection of the part. I have tried it a number

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of times, and the probability is that I have not got sufficient skill, or that I do not leave enough uterine tissue. I succeed in removing the uterus without clamping some of the vessels. It seems to me I get the cases that always bleed and do not get any where there is retraction. Formerly we used to clamp, put one on each side, clamping from below where it is thick and above where it is thin and the forceps stuck out. In those cases we had secondary hemorrhage and a high mortality. Now we operate differently. (Here Dr. Carstens illustrated his method of operation to the members of the section.)

I have a patient now in the Harper Hospital. I thought she had an immense abscess. She had a temperature of 103° and has been confined to her bed for three months. I decided that the best thing for her was to have a vaginal hysterectomy performed. She was 42 years old. I operated on her just as I have described here, and when I got inside I found one big tumor which was an ovarian cyst, and on both sides there was a large pus tube filled with the most offensive pus, and it was wonderful how I was enabled to shell it out, after which her temperature immediately dropped, after resorting to vaginal drainage. There are cases where it is policy to remove the pus tube, and occasionally you encounter cases that are permanently cured by such treatment as drainage, but as a general rule they have secondary trouble. Most of these cases were absolutely cured where there is a simple abscess in the broad ligament, which is really extra-peritoneal and is due to infection from laceration. If you have a pus tube the disease will recur if not removed. I do not think I would pursue the course spoken of by Dr. Manton of using peroxide of hydrogen in cavities fifteen volume strength, because it expands and might burst into the peritoneal cavity, and although I formerly used it a great deal I do not now believe that it kills microbes. A little bichloride of mercury solution is just as good.

DR. EUGENE BOISE: The question we are considering this afternoon is confined to pus in the pelvis, and one of the surgical indications nowadays is that if pus is found in the

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pelvis it must be treated surgically. We should not wait as we formerly did. If it is to be dealt with surgically, how shall we treat it? The first thing to determine is, shall we remove the uterus or not? The indications bearing on that point have been given by the gentlemen who read the papers. If the organ is healthy we leave it; if it is diseased it should be removed. The belief is still prevalent among some operators that the process of atrophy which takes place, brought about by the removal of the ovary, will do away with the chronic metritis and disease of the uterus which has existed previous to operation. But recent microscopical researches have shown that the process of atrophy is confined to the muscular tissue of the uterus, the circular fibres are rendered much smaller, and the endometrium and glandular tissues are not affected in the least. Disease of the uterus is largely confined to the endometrium and glandular structure of the uterus itself and submucous tissue. The process of atrophy does not affect that tissue. Therefore to depend upon the atrophic changes which take place or follow the removal of the ovaries and uterus is fallacious. This accounts for some of the pathological changes which occur after double ovariotomy. Given the question of a diseased uterus, shall we approach it from above or below? Not long ago I had the opportunity of seeing Segond operate a number of times for pus tubes, and as you know he is one of the foremost advocates of approaching pus in the pelvis through the vagina. The few operations which I saw have some bearing on one or two points raised in the discussion this afternoon in favor of abdominal section. Let us take a case of pus high up in the pelvis. Segond operated on one of these cases for the removal of a uterine fibroid per vaginam, because a large tumor was diagnosed by him and other able diagnosticians to be a fibroid. On approaching it through the vagina it proved to be an abscess, and the operation was completed in from thirty to forty minutes. The abscess was high up and was mistaken by some of the best men in New York for a fibroid tumor. I do not think it would be best for us to approach tumors or an

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abscess of that kind in the same way, simply because we do not all of us possess the manual dexterity.

Then the question has been raised that if the appendix be diseased we must go through the abdomen and not through the vagina. In one of the cases operated upon the appendix was found lying across the pelvis, and Dr. Segond said, shall we remove it? It being healthy it was allowed to remain. The one thing which to my mind bears most strongly upon this question of abdominal section is the danger of wounding the small intestine, not the rectum. The question arises in my mind, which I must confess my experience is not wide enough to settle, are we more liable to wound the small intestine by approaching these abscesses from above? Approaching them from below we often do not touch the intestine, whereas in going in from above we are obliged to tear the intestines away before we can reach the disease beneath.

As to those cases where the uterus is healthy, shall you drain the abscesses by vaginal incision as advocated by Dr. Manton, or go in above and remove the tubes and ovaries. Until recently I have been an advocate of abdominal section for that purpose, but I am becoming converted to vaginal section, but not in the manner which the doctor advocated. I think we can, in many cases of multiple abscesses (notwithstanding it is a difficult matter when the pelvis is infiltrated to determine whether there be one or more pus cavities), operate by making an incision in the cul-de-sac from broad ligament to broad ligament and with the two fingers introduced explore the entire cavity of the pelvis and open freely every sac which is there. If you should open the abdominal cavity it is a matter of small moment. Then pack with gauze as if you had done a hysterectomy. This is the correct way of treating conservatively these collections of pus in the pelvis.

DR. W. B. SPRAGUE: I would like to say a few words on the papers that have been read, not from the standpoint of an abdominal surgeon, but as a practitioner who has done work in this particular field, although I do not practice any of these methods. As I have previously expressed myself in

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this section, I strongly advocate conservative methods. I do not claim that conservative measures are always applicable to such cases as those under consideration, and there comes a time when the most radical measures must be resorted to. My experience has taught me that when we have pus in the pelvis we ought not to be in haste always in treating these cases surgically. I have one case still under observation which had a pus tube six or eight years ago, and the patient has had no indication of pus since our Grand Rapids meeting. I have also a case of double pyosalpinx of six or seven years standing which has improved so much that she has not been under treatment for about two years. Now she does all her own work, but for a long time she was unable to do it. I have had several patients operated on by surgeons, and I have been impressed that there are advantages in the dissection method of which Dr. Metcalf spoke. The immediate results are much better than those obtained by any other method I have observed. Shock seems to be less, as the doctor claims. I have seen cases where the shock seemed to be no more than that from a trachelorrhaphy or perineorrhaphy, and recovery is more rapid and better than by other methods. I have patients who were operated upon for pus in the pelvis bedridden to-day. The uterus remains and the endometritis keeps the patient an invalid. Can we have a healthy uterus with pus tubes? I do not believe we can. I believe pus tubes always follow endometritis, and for that reason there are few cases in which the uterus should be left where there are pus tubes.

Dr. Metcalf's report of cases is a remarkable one. I have had under my personal observation two of his cases for some time following operation, and I know he reported them correctly and that the results were as he claims.

DR. J. N. MARTIN: It seems to me that there is not much left to be said on this subject, as the ground has been thoroughly covered by those who have taken part in the discussion, but I cannot help but think that the question resolves itself into this, that it is not adapting a rule to all patients, but that it is adapting certain rules to certain pathological

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conditions. As I stated in my paper, we may think it best to perform a vaginal hysterectomy in a certain case and we may start about it, some complication is found which causes us to change our mode of procedure, and rather than to carry out any pet method with which we have started out we ought to consider the best interests of the patient. If necessary we should change from the vaginal to the abdominal method and operate not by any fixed rule made in the beginning. We should not feel embarrassed and make excuses for changing from the vaginal to the abdominal route if we find conditions indicating the change.

I was assigned this part of the discussion, "Abdominal Section with Hysterectomy." That does not say that I advocate it in all cases; not by any means, as remarked in beginning of my paper. If I were to choose an ideal method, adapted to all cases, I would say it is the combined method. Then I could operate from above or from below.

Dr. Longyear has referred to closing of the abdominal wound. I did not consider that as a special feature of this discussion. Dr. Longyear gave us a good paper on that subject a year or two ago, and his points were well taken. The point in my paper was whether it should be hysterectomy or not. If hysterectomy, when? If abdominal hysterectomy, when? This discussion had nothing to do with the manner of closing the abdominal wound.

With reference to the tissues being infiltrated with microbes, I think it is safe to say that when we have a suppurating centre. The tissues are bound together. There has been a discharge of pus into the bowel, and the tissues are pretty well infiltrated. If there has been an old suppurating centre and pus is discharged per vaginam or above, we naturally expect to find the tissues infiltrated with microbes.

As to those cases in which the question was asked, shall we remove the uterus in connection with the appendages, Dr. Carstens covered the point thoroughly and very justly when he said that it depends a good deal upon the age of the patient as to the exact course we should take, whether we will leave a little of one ovary and of one tube, or whether we

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will leave a whole ovary or one tube, or remove both tubes, both ovaries and the uterus. These are the points. It is a question then of treating each case according to the condition that we find.

Dr. Carstens touched very gingerly upon the question of wounding the intestines and repairing them. I do not know whether he thinks the wounded intestines can be repaired just as well by the vaginal route as by the abdominal. When we have a history of one of those cases and believe there is an opening into the bowel, then I think that opening can be scientifically repaired better by the abdominal than by the vaginal route. I believe that is true. That is one of the reasons I gave. I did not advocate in my paper that all cases should be operated on by the abdominal route. I cited cases where I thought the abdominal route was indicated, and cases where I thought abdominal hysterectomy was indicated. I first laid down my premises and drew my conclusions according to those premises, judging from experience in dealing with actual cases. I have no fault to find with what was said on the paper. I think all the papers have received as many complimentary remarks as they deserve, perhaps more too. But I think the concensus of opinion is that after all we treat cases according to the indications, and should not ride any particular hobby at the expense of the best interests of the patient.

DR. REUBEN PETERSON: I have but a few words to say in closing my part of the discussion. I wish to touch upon a few points made by different speakers. First, I cannot agree with Dr. Longyear when he says that it is necessary in cases of hysterectomy for purulent collections in the pelvis to make use of a large incision. A hysterectomy can be performed with the same size incision that we use in the removal of a pus tube.

It seems to me Dr. Carstens lays too much stress upon the age of the patient. We should deal with these cases from a pathological standpoint. If a woman at forty has a diseased uterus which cannot be cured by other methods than removal, I think that we should take it out. The same will apply to a

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woman of twenty or twenty-five. If a uterus can be saved by less radical procedures then it is our duty as surgeons to adopt them. According to Dr. Carstens' own statement he lays great stress upon the part the uterus plays in the production of pain and other neuroses. In other words, he acknowledges its importance in the woman's economy. Therefore, it seems to me unjustifiable no matter what the age to remove the organs for other than pathological reasons.

Considering the question of operating upon the appendix from below, I think the case Dr. Boise cites as operated upon by Segond in which the normal appendix was pulled down and examined does not belong to the category we are considing. It is comparatively easy by making use of the proper instruments to gain a view of the normal appendix during the operation of vaginal hysterectomy. But in the class of cases under discussion the appendix is usually diseased and possibly filled with pus. It is a dangerous procedure to remove such an organ from below, and the abdomen should be opened from above in order to successfully excise it.

I believe Dr. Sprague's statement to be correct, that the uterus is rarely healthy when we have a purulent discharge from the appendages. But this is not the question. The essential point is how much disease is present and whether it can be cured by less radical procedures than hysterectomy. In my opinion there have been too many uteri removed. They have been removed in some cases simply because the operation has been somewhat easier than it used to be, although it is by no means a simple procedure. Each case must be examined carefully and judged by itself and the surgeon should operate by no fixed rule.

DR. WM. F. METCALF: The subject has been so thoroughly discussed that I shall only say a few words. Yet there are a few points which I desire to touch upon that have been brought out in the discussion. No amount of verbal argument will convince men of action. The only argument is the bringing forth of large lists of cases operated upon by different methods. The selection of the method for pelvic

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suppuration undoubtedly requires the exercise of the keenest judgment.

With reference to repairing the bowel by the vaginal method and the argument that has been raised against this method, I will say that this point has been answered by Dr. Boise. I believe we do not wound the bowel in vaginal work. I see no necessity for doing it. The intestine is loose, will come down if it is not adherent to the parts, and the separation can be carefully made. In other cases the wall of inflammation has so isolated the pelvic from the abdominal cavity that we do not see the intestines. If there be appendicitis there is no law to prevent our opening the abdomen at the same time, because we may have begun the operation by the vaginal method, therefore after proceeding part way we may abandon it, if we are prepared for the work, as we should be when we begin almost any operation within the pelvis. We should be thoroughly prepared for abdominal section. There is very little delay in changing from one method to another. Furthermore, our having dissected half way from below renders the work from the abdominal side much easier, and we find when finished a complete way for drainage.

As to leaving in the uterus, it would seem to me that this argument has very little weight. Personally I see very few cases of pyosalpinx in which the uterus is not diseased. The disease starts primarily in the endometrium; it is usually of gonorrhœal origin in the majority of cases, and we do not know how deeply the gonococcus penetrates into the tissues beneath the endometrium. I have several cases which I have curetted again and again, and yet they returned to me for treatment of the endometrium. Several of the gentlemen have spoken to the effect that if the uterus be healthy we should leave it. How are you going to know if the uterus is healthy or not? Infection has entered through its endometrium, and although apparently healthy we should not consider the gross appearances only. We should consider the reflex symptoms which arise from such cases. In cases where the reflex symptoms are marked, in which there is dis-

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turbance of the heart's action, or of the rythm of any internal organ, the uterus had better be sacrificed in cases of pus tubes. In such cases the uterus is practically useless, and when involved in disease is detrimental to the general organism. It would be a different question to consider if it were more dangerous to remove the uterus. It is less dangerous to remove all the organs than to remove simply the appendages for such pathological conditions as are under discussion. Undoubtedly there are conditions, particularly where the abscess points high up, and where the two cavities are not separated by an inflammatory wall; in such cases I think it would be advisable to begin with an abdominal section. I am not sure that it would; I may change my mind on that point later.

I am pleased to know that Dr. Carstens has enjoyed a change of heart during the past year or two regarding his method of operating by the vaginal route. He thinks I must be specially favored to find cases that do not bleed. I do not know why it is, but such cases have come to me. The cases I have reported are consecutive operations, and every ligature used has been taken note of. A point in the method by dissection to which I have alluded is that the patient suffers less. When we clamp tissue the cerebro-spinal nerve endings are there, as well as the nerves of nutrition. My experience, therefore, with the clamp method, though limited, is that patients suffer and have to have opium, which retards recovery. Any method in which tissue is clamped and its circulation cut off is not an ideal method. We occasionally have to do it. We need not use two clamps. When we reach a point half way up the uterus, if we wish to finish the operation quickly we can clamp the upper half of the broad ligament with less suffering to these patients than if we clamp the whole ligament. At the juncture of the internal os, in the cellular tissue surrounding the uterus, the sympathetic ganglia are more numerous than in any other locality in the body except it be in the nerve centers themselves. The objection to clamping this tissue can be overcome in all cases by dis-

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secting beneath the uterine artery unless there be malignant infiltration to consider.

DR. W. P. MANTON: I just want to say that I agree perfectly with the remarks of Dr. Longyear, and also with those of my friend Dr. Peterson. I think the uterus has a purpose in the economy, even after the removal of pus tubes and ovarian abscesses, and I think that too many uteri are removed. It is impossible for us to become so expert as to determine in every instance whether the mucous membrane of the uterus is going on to further pathological change, giving rise to suffering on the part of the patient, or not. In the last twelve years, during which I have done a considerable number of both abdominal and vaginal operations, as well as the operation Dr. Metcalf mentions of dissecting out the uterus, I have seen only two or three cases where, after a lapse of years, the condition of the patient made it seem desirable that the uterus should have been removed at the time of the first operation; where the uterus had subsequently gone on to pathological changes which had rendered its removal necessary. I shall operate on such a case next week where I removed pus tubes at Harper Hospital a year ago. In another case, in which the tubes originally became infected through gonorrhœa, but the uterine condition was entirely relieved by proper local treatment, such as curettage, etc., I removed the tubes and ovaries and the patient made a perfect recovery. The uterus was in a perfect, normal condition, and for many months the patient enjoyed perfect health, but about a year ago she became infected again. She is a lady of high social standing, a married woman, with several children, but became infected again through her husband, and had an attack of vaginitis and endometritis, and that condition has only been partially relieved. I propose in the near future, to curette the uterus, and I hope in that way to relieve the symptoms. The same woman, while in New York, was persuaded by some friends of hers to consult one of the gynecologists there. This gentleman, not knowing the history of the case, said that a mistake had been made in not

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removing the uterus at the original operation. This is the tendency of most eastern men to remove the uterus at the first operation, and our friend from Grand Rapids has recently come in contact with the eastern microbe and has become somewhat infected. The tendency with some eastern men is to be too radical in some cases. I believe as physicians we must treat our patients according to the indications presented, and upon their own merits. If we can cure an abscess by the abdominal or vaginal route, let us do it in that way. Do not let us do any more damage with surgery than is absolutely necessary. In a large proportion of these cases my own preference is for the abdominal method. It is the brilliancy of the operation of vaginal hysterectomy which prompts so many operators to do it. It is comparatively easy, but it is sometimes a difficult operation. The comparative ease with which the uterus may be enucleated, tied off or clamped, impresses particularly the younger men in the profession with the necessity of removing every uterus that comes under their hands, and I am very positive from the cases I have seen that very many uteri are unnecessarily removed in this way, and I must say that many patients are not as much benefited by total extirpation as some would have us believe. I believe the function of the cervix in the vaginal vault is quite an important one, and that in removing the uterus by the vagina we are unable to leave the end of the cervix, whereas we can do so by the abdominal method.

Just one more point, and that is with reference to what Dr. Carstens has said in regard to peroxide of hydrogen. I use it in the abdomen in cases of pus tubes, and I think its use desirable sometimes in cases of appendicitis, and I have never yet had in my practice an instance which would lead me to think that this agent had done any harm. On the contrary, I believe it has done a great deal of good, and as for rupturing adhesions, etc., I have never yet known it to do so, and I doubt very much whether, if carefully applied, it would have that effect. I do not go as far as Dr. Robert T. Morris, of New York, who has used it quite extensively in appendicitis. Morris passes the undiluted peroxide of hydrogen into the

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peritoneal cavity, douches it in, and washes the cavity and intestines afterwards by sterilized normal salt solution. But I do use it considerably, and I believe it is a good thing. It must be used carefully and with judgment, and when so employed it does no harm but much good.

DR. H. W. LONGYEAR: I desire to say a word or two in reply to what Dr. Martin has said with reference to closing the abdominal incision. We are discussing the best route by which to remove pus, and it seems to me we should consider every question relative to it, particularly the future welfare of the patient, and I think her future welfare depends to a large extent upon the question of hernia. You certainly will not get hernia if you operate by the vagina. She may get hernia if you make a large incision in the abdomen and do not properly close it. It therefore does have a bearing upon this discussion, and every matter that pertains to the future welfare of the patient, showing that one method is better than another, should be taken up and thoroughly considered.

DR. J. HENRY CARSTENS: I agree with the previous speakers, that in these cases we should use our best judgment, and if a case presents itself in which the indications call for the abdominal method, this method should be selected and carried out.

With regard to the case related by Dr. Martin, where the abscess broke into the intestine, this case could have been dealt with by the abdominal method, separating the tube from the adhesions, and, opening in the intestine, he must sew it up. He cannot do it by the vaginal route. You do not usually injure the small intestine by the vaginal route. As far as the age of the patient is concerned, I clearly stated that it was one factor, and the other factor was a badly diseased uterus. Of course, if the uterus is healthy and the woman is 70 years old, I would not take it out. If it is diseased, and the patient is only 15 years of age, I would remove it, because I do not think it can be cured otherwise.

DR. EUGENE BOISE: This matter resolves itself into a question of judgment. I do not believe there is a gentleman present who would remove a healthy uterus if it was not

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necessary in his judgment, but even the most conservative operators know that in cases where we have a double oophorectomy patients afterwards come back saying that they are not cured, and practically are no better than before. These cases are constantly coming to us, and we have to remove the uterus in order to cure them. Nobody wishes to remove anything that can be saved and cured. The question is to cure the patient, and if you effect a permanent cure, you are obliged to remove the uterus with the pus tubes. It is the duty of the surgeon to do it. I know that by vaginal incision and drainage of pus cavities many patients can be restored to absolute health without any symptom of trouble afterward. Menstruation is resumed without pain, and no reflex symptoms follow. I have seen it and know that it can be done. This is the height of conservatism.

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REPORT OF A CASE OF ECTOPIC GESTATION ASSOCIATED WITH TUBERCULOSIS OF THE TUBES, PLACENTA AND FŒTUS.

ALDRED S. WARTHIN, M. D.,
Ann Arbor.

In so far as I have been able to discover the case which I present to you in this report is unique in being the first case of extra-uterine pregnancy associated with tuberculosis of the tubes that has yet been observed. While the field of the etiology of ectopic gestation is thus enlarged by the admission of a new factor, the case becomes still more important because of the undoubted proof of the existence of tuberculosis in the placenta and fœtus. For this reason its relation to the question of the inheritance of tuberculosis gives the case the greatest scientific interest. This question still open to discussion receives here important evidence as to the possibility of the infection of the child from a diseased parent in its intra-uterine life.

The patient who forms the subject of this report was from the clinic of Dr. James N. Martin, Professor of Gynecology and Obstetrics in the University of Michigan, and to his kindness and courtesy I am indebted for the history of the case and the results of the operation. The history is briefly as follows:

Mrs. F. C., thirty-eight years of age; had been married for thirteen years. She had no children and no abortions. Her periods had always been regular until August, 1895. At that time she menstruated in the second week and then did not have a return until February, 1896. From August to October she felt well, but early in that month she had a sudden attack

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of sharp and sickening pains low down in her left side. The patient described these pains as darting in all directions and feeling as if the naval was being pulled backwards. There was a decided tendency to collapse, but the symptoms soon subsided. Two days after she had another attack but less severe, and six days later she was again attacked with pains so severe that the use of morphine was necessary. After the attack the patient felt very weak and faint; a general peritonitis followed and it was thought that there was an intestinal obstruction. From this attack she recovered slowly. Four weeks later she had sensations of throbbing, heat and pain in the pelvis. This was followed by an abundant discharge of a dark brownish color from the vagina. This contained soft cheesy masses looking like thick pus. Toward the end of each discharge an offensive odor was noticed. These continued at intervals for about three weeks, the discharges always being preceded by these sensations of throbbing, heat and pain. At this time there was passed something resembling a small sack. From the beginning of the trouble in October the patient gradually declined and lost strength. She could not rest upon either side because of drawing sensations.

Her periods returned in February and again in March. These lasted but one day, the usual duration having been one and a half to three days. The amount was small and there was much pain. She had also at times a thick white discharge from the vagina, small in amount.

She was admitted to the University Hospital on the 26th of March. Her general condition at this time was fair; there was a slight anemia; she was weak but not emaciated. Her appetite was fair, but digestion was not normal. The bowels were regular. Her locomotion was not difficult. There were no symptoms on the part of heart or lungs. During the week preceding the operation she had no temperature, and there was nothing in the general aspect of the case to suggest tuberculosis.

The physical examination was made on the 27th. The examination of the heart and lungs was negative. On the

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left side and low down close to the walls of the pelvis there was dullness and some thickening. The vault of the vagina was tense. The cervix and uterus rested backwards, the uterus being immovable and very sensitive. It measured two and a half inches. At the left of the uterus, extending obliquely outward and upward toward the wall of the pelvis there was an oval mass rather irregular in outline and very sensitive. This pushed the uterus to the right and the cervix somewhat backwards. No examination of the blood was made. The urine examination was negative with the exception of the presence of a small amount of pus. Neither this nor the vaginal discharge was stained for tubercle bacilli.

With the exception of the cessation of the menses the patient had had no symptoms or signs that would lead her to believe that she was pregnant, and she did not think that she was in that condition. The diagnosis of extra-uterine pregnancy was however made by Dr. Martin, and the patient was prepared for operation. This took place on the third of April.

A median incision was made. The parts were found to be very vascular, and there were many adhesions between the uterus, appendages and intestines. The right tube was found to be tortuous and enlarged and the ovary cystic. These were removed and the stump cauterized. In the fimbriated extremity was a nodular hemorrhagic mass about the size of a hazel nut. This was separated during the operation and preserved for future examination. The left ovary was found in about its normal location. It was enlarged and cystic. Above it and attached to it by many adhesions extended the thickened and twisted tube, which passed upwards into a mass about the size of a cocoanut. This mass was covered with friable adhesions and lay up well toward the intestines. The distal portion of the tube passed into the lower surface of this mass and was lost in the adhesions covering it. About an inch to the right of this the greatly thickened tube was again found and traced on to the uterus, the cyst therefore arising from the tube about an inch and a half from this organ.

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The mass was dissected out with the greatest difficulty. When the adhesions covering the upper surface were removed the head of a fœtus was seen protruding from a rent in this portion of the mass. In removing the cyst the distal portion of the tube together with the ovary was separated. These were also removed. The uterine portion of the tube was severed about one-half inch from the uterus and the stump cauterized. The cyst was then opened in the presence of the class and the fœtus demonstrated. The tubercular nature of the tubal disease was not then suspected. After the demonstration the specimens were placed in a four per cent. solution of formalin and brought to my laboratory.

On the next morning I began my examination of these with the following results:

RIGHT OVARY AND TUBE.

The right ovary was about the size of a small walnut; its surface was slightly nodular. Between it and the tube there was a mass of new tissue about one-fourth of an inch thick, nodular and hemorrhagic. From this mass a piece attached to the fimbriæ had been removed during the operation. The cut surface of the ovary showed the usual hyaline and cystic degeneration of the Graafian scars. The microscopic appearance of the small hemorrhagic mass was so characteristic of the hemorrhagic tubercles of the peritoneum that it was at once cut and stained. The suspicion was confirmed by the microscopical picture. The mass consisted almost entirely of epithelioid cells; in some portions there was a reticulum of rather coarse fibres of connective tissue. There were also large areas of caseous necrosis, and among the epithelioid cells at the periphery of the caseated areas there were occasional giant cells with many nuclei. Many of these giant cells showed beginning caseation. There were but few blood vessels. Large areas showed extensive recent hemorrhages, while others gave evidence of old extravation by the large amount of hæmosiderine scattered throughout the tissue. Sections of this mass were stained for tubercle bacilli in the usual way with carbolic fuchsin, and the presence of the bacilli in scanty numbers was demonstrated.

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On cutting into the distended right tube it was found to be filled with a soft, cheesy substance which had not been entirely hardened by the formalin. Smears were made from this and stained for tubercle bacilli with negative results. Thin transverse sections of the tube were then hardened in absolute alcohol, embedded in celloidin and cut. Some of these sections were stained with the Van Gieson's stain and others with hæmalum. These sections on examination were found to give a beautiful picture of tubal tuberculosis. The wall of the tube was much thickened, the vessels were congested, and there were numerous areas of hemorrhage and small celled infiltration in the connective tissue and between the layers of muscle. Small miliary tubercles were also numerous throughout the wall and under the outer coat. In many sections the lumen of the tube was entirely filled by a mass of tubercles in all stages of growth, the epithelium of the plications of the mucosa being entirely lost. The tubercles were chiefly epithelioid with a limited small celled infiltration around the periphery. In some sections giant cells were numerous, in others only a few could be found. Extensive areas of caseation with occasional masses of calcification were found in some sections. In others the lumen was only partly obstructed and numerous miliary tubercles of small size were scattered through the mucosa just beneath the epithelium, which was preserved. These tubercles were epithelioid with a moderate smalled celled infiltration. Giant cells were numerous, but caseation was not extensive. Masses of calcification were not uncommon. In many places the folds of the mucosa presented a perfectly normal structure except for the presence of the tubercles, but in others there was a marked inflammatory process with destruction of the mucosa and the presence of large areas of small celled infiltration. Some of these areas were freshly hemorrhagic, others were full of hemosiderine. Toward the uterine end of the tube the process became more miliary in type and less marked. The sections of this tube stained for the bacilli gave negative results.

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LEFT OVARY.

The left ovary was much larger than the right, about the size of a large walnut. The surface was uneven and covered with the stringy remains of many adhesions which had bound it to the cyst. Many small cysts projected on its surface, and on its upper margin a true corpus luteum presented. The cut surface showed numerous small cysts, hyaline scars and a true corpus luteum about three-quarters of an inch in diameter and of a pale yellow color. The convoluted inner margin surrounded a mass of coagulated mucin which was slightly hemorrhagic. The fimbriated extremity of the tube was occluded by a small hemorrhagic mass, and in the fimbriæ were several small cysts and a few small firm nodules of a yellowish color. The tube was much distended and twisted, but became about normal in size at the point where it passed into the cyst. On the surface of the tube and ovary there were several small, irregular, brownish masses attached loosely by thin bands of adhesions. Sections of these nodules showed them to be hemorrhagic tubercles of the same character as the one from the right ovary, having the same resemblance to the hemorrhagic tubercles so often found on the peritoneum.

Sections of the distal end of the tube when examined microscopically gave a picture similar to that of the right side. There was a miliary tuberculosis of the mucosa, but in some sections the appearance was that of a diffuse process affecting also the walls of the tube. There were large areas of caseation and calcification. Sections from this part of the tube stained for the tubercle bacilli gave negative results. The portion of the tube between the uterus and the cyst was also twisted and greatly distended, especially at the point where it passed into the cyst, where its diameter reached that of an inch. The tube was filled with yellowish material of the consistency of firm cheese. The microscopical examinations of sections taken from this portion of the tube showed a chronic diffuse tuberculosis rather than a miliary process. The lumen was almost entirely filled in some places by a reticulated tubercular mass containing numerous giant cells,

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and with areas of caseation and calcification. Only a few of the epithelial folds remained preserved. In many places the process extended into the muscular coat, and quite large tubercles were occasionally found here.

The cyst consisted of an outer capsule inclosing the red, spongy and irregularly shaped mass which comprised the placenta and the fœtal membranes. The outer surface of the cyst was rough, somewhat irregular and covered with the remains of stringy adhesions. On cutting through the wall, numerous yellow areas of varying size from that of a pinhead to the size of a small finger nail were found. Some of these were firm, others were soft and cheesy. These masses extended throughout the placenta and fœtal membranes. In the cavity of the cyst lay a fœtus flattened and somewhat macerated, about seven inches in length. Its age was evidently between three and four months, the finger-nails and the glans penis being formed, but the prepuce and scrotum not yet developed. The umbilical cord was about eight inches long and arose from the lower part of the cyst very near to the large tubercular mass in the uterine portion of the tube.

FŒTUS.

At about three-fourths of the length of the cord from its origin toward the fœtus there were several well marked nodules, one containing yellowish caseous material, the largest one quite firm except in its centre which was soft and yellow. These were cut off for hardening and embedding. The fœtus was also opened and the liver, spleen, kidneys and lungs were removed and hardened. These organs were almost completely necrosed, the liver consisting only of a reddish cheesy mass crumbling into bits. Some of the yellow areas in the cyst wall and placenta were also prepared for examination. The microscopic examination of the sections taken from the cyst wall showed it to be the greatly distended tube as the thinned layers of muscle could still be detected. The yellowish areas in the wall proved to be giant-celled epithelioid tubercles with calcification. The examination of the similar areas in the placenta showed them to be the same thing. Throughout the whole placental tissue typical tuber-

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eles could be found. In one section from the placenta stained for tubercle bacilli their presence was demonstrated.

The sections from the nodules in the cord showed near the necrosed wall of a large vessel a loosely reticulated tissue of epithelioid cells and small celled infiltration. No giant cells were found, but the character of the tissue with areas of caseation mark it undoubtedly as tubercular. The microscopical examination of the internal organs was negative. The liver consisted almost entirely of formless dead matter. Hundreds of sections of this were stained for the bacilli with negative results. It is greatly to be regretted that we did not recognize the existence of tuberculosis before the specimens were put into the formalin, as the presence of bacilli in the internal organs might have been shown by injecting animals with portions of the organs or by making cultures from them. Only in the lung was anything like a tubercle found. On cutting this organ after hardening preparatory to imbedding two whitish areas about the size of small pin heads were seen. On section these proved te be two small areas of complete necrosis where the structure was lost, while the tissue about showed faintly staining nuclei without this loss of form. These were therefore very highly suggestive of miliary tubercles, but the fact could not be positively decided. One of my assistants thought that he discovered tubercle bacilli in a section of the kidneys stained for these, but when I went to look at them they could not be found. Therefore, so far as the fœtus is concerned, the actual demonstration in its structures of tubercular changes must be confined to the membranes and cord, but it seems almost certain that the internal organs must have been similarly effected, though this could not be demonstrated beyond all doubt.

The patient died of general peritonitis on the 13th of April, ten days after the operation. An autopsy was refused, so the existence of tuberculosis in the other organs could not be ascertained. As mentioned before there were no signs or symptoms which would lead us to suspect any other localization of the disease, so that I think the case may be looked upon as a primary tuberculosis of the genital tract. From a

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sister of the patient it was learned that a year and a half ago the latter's husband had been ill with fever, night sweats, general weakness and loss of flesh, and on this account thought to have consumption, but he afterwards entirely recovered. The family physician in answer to my letter of inquiry informed me that the husband is now perfectly well without signs or symptoms of tuberculosis. Specimens of his urine which were to be sent to me for examination for tubercle bacilli have not arrived, so I have been unable to throw any definite light upon the etiology of the patient's condition, or to establish the relation between it and her husband's symptoms of a year and and a half ago.

In conclusion, tuberculosis of the tubes, it seems to me from this case, must be considered as an etiological factor in the production of ectopic gestation. If the obstruction of the tube hindering the progress of the ovum toward the uterus is the chief factor, we have in the almost complete obliteration of the canal by the numerous miliary tubercles in the mucosa a most favorable condition for its occurrence. It is very probable that the salpingitis which is found to exist in almost every case of extra-uterine pregnancy, and which is usually looked upon as the causal factor, may in more cases than is now suspected be found to be tuberculous.

Up to a very short time ago tuberculosis of the female genital tract, though it had been known to exist for a long period of time, did not assume that importance which it is now beginning to hold. During the last three years it has been shown that far from being a rare disease it occurs in a very large proportion of all the cases treated for inflammatory disease of this tract. Williams, of Johns Hopkins, has in a very exhaustive article in the Johns Hopkins Hospital reports for 1892 reviewed the subject up to that year. He makes the statement that in his own experience about eight per cent. of all the cases in which the appendages are removed for inflammatory disease are tubercular; in other words every twelfth case of adherent tubes and ovaries or pus tubes is of tubercular origin. He further emphasizes the difficulty of making a microscopic diagnosis. Of his cases

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only twenty-five per cent. were suspected tuberculosis, seventy-five per cent. being unsuspected as far as this condition was concerned. Since the ultimate diagnosis is, therefore, a microscopical one, it is very probable that a wider experience in making these examinations will increase greatly the proportion in which it is found to occur. The importance, on this account, of a technical examination as a matter of routine in all of the cases of tubal inflammation cannot be too strongly urged.

Tuberculosis of the ovary is not so common as that of the tubes, but still occurs so frequently that it cannot be looked upon as a rare condition. It is most frequently met with on the surface of the organ, but Williams and numerous other observers have found it in the body of the ovary, even in the walls of cystic tumors. With it there is usually found a tuberculosis of the tubes or uterus. In our own case the small nodules attached to the surface of the ovary are really tubercles of the peritoneum. It is here worthy of note that tuberculosis of the tubes must be looked upon as perhaps the most important factor of infection in tubercular peritonitis. It is due largely to the fact that laparotomy has lately been so extensively adopted as a cure for this condition that the occurrence of tubercular salpingitis has been discovered to be of so frequent occurrence, since in the majority of cases the conditions have been found to be co-existent. The small nodules that were found in this case may, I think, be looked upon as an early stage of tubercular peritonitis in which the infection undoubtedly arose from a diseased tube. The location of the tubercles upon the surface of the ovary and in the fimbriated extremity all point strongly to this mode of origin.

Up to the date of William's article in 1892 only one case of tuberculosis of the placenta had been reported, and from the description given of that case its nature is somewhat doubtful. But Lehmann in 1893 (Deud. Med. Wochenschr, 1893), found typical tubercles in the placenta of a woman dying from acute miliary tuberculosis in the seventh or eighth month of pregnancy. Schmorl and Kockel in 1894 (Beitrage v. Ziegler, XVI, 1894), make also a report upon this con-

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dition, so that this is the third instance in which placental tuberculosis has been observed and reported. Schmorl, Birch-Hirschfeld and Landouzy had, however, demonstrated the presence of the tubercle bacilli in the blood of the placenta and of the fœtal organs, and were able to make cultures and successful inoculation with material from these organs. Histological changes were not definitely ascertained by these investigators.

The presence of the tubercles in the umbilical cord makes this case important because it is the first one reported in which that condition has been found. This gives added evidence to the still mooted question of the inheritance in the child of tuberculosis from the mother. I regret deeply that I could not satisfy myself as to the presence of tubercle bacilli in the internal organs of the fœtus as it seems almost certain that they must be present there. The cases mentioned above in which the presence of the bacilli were demonstrated in the fœtus were all cases of acute miliary tuberculosis, the mother dying in pregnancy. It seems very improbable that infection of the fœtus in this disease can play much part in the inheritance of tuberculosis because of the death of parent and child before birth occurs. It would be more important to prove the possibility of infection from a localized tuberculosis of the tubes or uterus, in which condition the fœtus might go on to full term and delivery and so come infected into the world. This case, I think, goes very far towards proving the possibility of this event.

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DISCUSSION ON DR. WARTHIN'S PAPER.

DR. W. P. MANTON: I congratulate the doctor on the able and thorough manner in which he made his investigations. I have seen notes of a case in a German medical journal, but do not recall one reported in this country, of ectopic gestation, in which tuberculosis existed at the same time. I was much interested in the matter of tuberculosis of the tube and uterus at the same time. It was a point I meant to have brought out in the other discussion, because I have operated on several cases where the tubes were infected, but the uterus apparently was not infected. The uterus was left in these cases, the patients made complete recoveries, and are well today, after several years.

I hope the author of the paper will be able to make colored sketches of his section, and present them in the transactions of the society. We have certainly been favored with a valuable contribution to the subject of ectopic gestation.

DR. H. W. LONGYEAR: I express my gratitude at having heard the doctor's very able and scientific paper, and I congratulate him. It is certainly a rare case. There is one point I would touch on only, that is the eticology in his case. While it was cured, there was no special way that would lead to the cause of the disease, and in connection with that I wish to speak of the matter of the production of tuberculosis through the medium of cow's milk. I believe that is a factor that we have not considered very much heretofore in our discussions, but which we will have to do before long. From the examinations which have been made throughout the State of Michigan we find cattle infected to a large extent, and only a short time ago I operated on a young girl, 15 years of age, who had encysted tubercular peritonitis. A large cyst occupied the lower part of the abdomen. In this case the family history on both sides was free from tuberculosis. In

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looking up the cause I found that the patient had been peculiar in her diet, and had lived almost entirely on milk all her life; that for the last two or three years she had lived in one place in the country near Detroit, and had used milk from one dairy. So I had an examination made through the Health Board of the cattle in that dairy, and found that there were a number of them tuberculous. Whether this has any bearing upon these cases or not is a question.

DR. J. N. MARTIN: There is one thing that may be of some interest which bears upon the transmission of tuberculosis to the offspring, and that is the peculiar arrangement of this extrauterine sac to the distal end of the Fallopian tube, apparently near the end of the Fallopian tube. The outer third of the tube is divided, and there must have been two distinct canals, and the larger and upper one was the one in which the fœtus developed, and the smaller one extending out to the side and below was filled with tubercular deposit. I would ask the doctor whether that is not correct.

DR. WARTHIN: Yes, the lower portion.

DR. MARTIN: Both of which you can see distinctly pressed together in their proper relation. The doctor will be glad to demonstrate the case. It is one of considerable interest and required no little amount of study in order to get the exact relations of the extrauterine sac and fœtus, also the ovary. The ovary on the side in which its sac was located was not involved in the mass at all and was distinctly below it. A probe was inserted, the calibre greatly distended, running below and toward the ovary, but distinct from the canal in which the extrauterine gestation developed. As Dr. Warthin demonstrated by microscopical examination, this sac was covered all around by muscular tissue, showing that it was simply the dilated portion of the external part of the tube.

It may be of interest to the section for me to report a case of irregular tumor in the abdomen, which attained the size of a hat. It was very irregular in outline. I must confess that I did not know the exact nature of the tumor, but from the history of the case we learned that nine or ten months before a tumor developed upon the left side

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and after a few weeks broke loose, went up into the median line and grew larger. The patient had considerable pain on that side. It grew until I made an abdominal section and removed it. It proved to be a large tumor of the kidney with kidney structure mostly gone. It was found to be a myolipoma, and in addition to a big irregular mass there was a prolongation of some six inches and a half down the ureter, and the mass in the ureter was as large as my finger. The part extended down close to the bladder. I removed the tumor by abdominal section, dissected the ureter out below when the tumor prolongation projected, tied off the ureter down there, and the patient is making an uninterrupted recovery. Her temperature has been normal for a week or two and she is doing nicely. I have been unable to find a case reported just like it.

DR. WARTHIN: This case is undoubtedly one of myxolipoma of the kidney. I have brought the tumor along with me for exhibition.

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THE PROCESS OF REPAIR IN THE PERITONEUM.

C. G. DARLING, M. D.,
Ann Arbor.

I hesitate to present a subject of so little interest to the surgeon of today. There was a time, not quite one hundred years ago, when the surgeon treated the peritoneum with great respect; he approached its precincts with misgivings which forbode a fatal result. All operations in this neighborhood were designed to avoid the abdomen, which was never opened except death was already certain, and rarely even under such serious conditions. Today we note a change; our surgeon treats the peritoneum with familiarity, yea, almost contempt. He demands that it shall help him in repairing all neighboring injuries and wounds, and holds it guilty of neglect of duty if it fails to take care of all germs which he may by chance introduce.

He maintains that upon certain occasions the peritoneum can manufacture a good antiseptic fluid capable of destroying a limited number of germs.

If the contents of the intestines, the gall bladder or a tumor comes in contact with its surface, he shows little anxiety, but washes it carefully with sterilized water, trusting that it will take care of the few remaining germs and destroy them. Even the presence of blood upon the surface or in the cavity, which interferes so much with the healing process, receives but a passing notice. The peritoneum will take care of that. It must also take care of enormous pedicles, countless ligatures, and at the same time repair all wounds, furnishing just enough material for repair and no more.

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Now the peritoneum does not furnish material in the same quantity or repair damages with the same promptness in all parts, but we are beginning to give some attention to the conditions which favor early repair without forming unnecessary and dangerous adhesions.

The American System of Gynecology, which represents the opinions of many eminent writers, contains the following statement concerning peritonitis: "In the fibrinous form should two opposing surfaces touch each other they will almost certainly become adherent until such time at least when the lymph becomes absorbed. If it does not disappear finally by absorption permanent adhesions will result, more or less well organized in accordance with the original amount of lymph excreted, and the activity of proliferation of the underlying endothelial cells of the serous membrane."

Senn in his work called "Experimental Surgery" gives as a result of his experiments upon animals, that in all cases of coaptation of intestinal surfaces, union and vascularization were more complete when the parts were scarified, and that in all cases where complete coaptation was performed by means of the bone plates, the endothelium was destroyed in eighteen hours.

Here is clearly a difference of opinion as to the source of the cells concerned in the process of repair, if the adhesions following inflammation can be looked upon as new tissue.

Certainly in many cases the endothelial cells are not necessary to the process as union can take place without them.

Senn's experiments show that repair takes place more promptly when the endothelial cells have been removed, hence we may well look to some other source for the cells which form the new tissue. Piersol on page 130 of his work on Histology states, "That in normal serous membrane connective tissue cells are frequently seen with processes extending between the endothelial plates of the free surface." This indicates quite clearly the source from which new cells for repair may be derived.

Some months ago Dr. C. G. Huber and I began a series of experiments to determine how repair in the peritoneum and

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union of serous surfaces takes place. While a large number of fine microscopical specimens have been made, the work is far from completion. Enough, however, has been done to warrant the statement that in the process of repair where the surfaces are coaptated the endothelial cells are first destroyed and union then takes place by proliferation of connective tissue cells beneath.

The surprising rapidity with which the peritoneum takes the first steps in the process of repair may be seen after inguinal colotomy where the surface may be examined frequently without special danger to the patient.

In ten or twelve hours an exudate is seen covering the stitches, which in many places extends at least one-quarter of an inch from them. Soon new blood vessels begin to form from the surrounding blood supply, which at the end of the seventh day are so well organized that any attempt to raise the exudate from the peritoneum will bring to view minute bleeding points, indicating clearly that the small, newly formed vessels have been broken. The same change probably takes place within the abdomen. If this be the true process by which new cell growth in the peritoneum begins, every effort should be made to retain the integrity of the endothelium and reduce to a minimum those points where it is absent or must be removed. Once fluids were introduced into the cavity of the abdomen with great caution, and only sponges were used to cleanse the parts, it was found that much use of the sponge injured the endothelium and adhesions followed.

At first antiseptic solutions were used, but they caused irritation, and in some instances fatal poisoning. Now all of those have been discarded for sterilized water and normal saline solution with gratifying results. We have gone a step farther than using them for cleansing purposes alone, and claim that they will mechanically aid in unfolding the coils of intestines and floating the omentum, so that adhesions taking place may find the parts as nearly as possible in their normal position. When there is great shock, the solution may be

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used very warm with great benefit to the patient, and no disadvantage to the healing process.

Experiment—A quart of hot normal saline solution was put into the abdomen of a dog weighing forty-five pounds, after operation. The wound was sutured so that none of it might be lost by drainage. Four days later, a post mortem showed that the fluid was entirely absorbed, and the process of repair in nowise affected. Iodoform has long been in favor in abdominal surgery, not only to check hemorrhage where the surface has lost its epithelium, but to hasten the process of healing.

Hydrogen peroxide has been favorably received by some operators, who are of the opinion that it should not remain long in contact with the tissues. Dr. W. E. Porter of New York, believes that the normal saline is the best solution for removing it, and that immediate application after the use of hydrogen peroxide prevents loss of endothelial cells and the formation of adhesions.

Nature frequently resorts to the use of a process of repair in shutting off the abdominal cavity proper, from an infected portion, as in appendicitis or localized tubercular peritonitis. When we open the cavity and come in contact with an abscess or some septic condition, we assist nature in her efforts by inserting a mikulicz drain, which keeps the coils of intestines lying against it at rest, drains away the serum and favors the deposit of lymph at a point where it is most needed. Senn has demonstrated that the omentum might be brought to our aid in repairing damages to the peritoneum, little however, has been done, except to place it between the intestines and the incision to prevent them from becoming attached to the abdominal wall. How soon will we be transferring parts of it to such points of the peritoneum as need to be strengthened and repaired. Sometimes power of the peritoneum may be impaired, as by the continued pressure of a truss. In the operation for the radical cure of inguinal hernia, the process of repair is aided by passing the "purse string" ligature through the sac at a point where proliferation of tissue should

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be most abundant. Scarifying the inner side of the sac at this point might be of service in promoting firm union.

When ventral hernia follows operations the muscle or connective tissue layers may separate, but union of the peritoneum remains complete. Abscess may form in the abdominal incision, but pus never gets into the cavity. The suture with which the peritoneum was closed may be infected and an abscess formed, but quickly opened. The thread may be discharged and no pus reach the cavity. The union is not only complete, but is a barrier through which the germs of suppuration do not pass. No other newly formed tissue has this power of resisting germs to such a great extent.

The only way in which germs seem to be able to pass the barrier of repair is by pressure or sudden perforation.

The pus formed in appendicitis does not reach the general cavity without mechanically pushing a way through the new wall.

Operations upon the gall, bladder, stomach and intestines are not followed by infection because their contents passed at the point of suture.

Post mortem examination of forty dogs in the surgical laboratory where intestinal anastomosis was performed showed that in all cases where fatal infection came from the intestine there was obstruction and distention of the gut until the new formed tissue was torn and the contents of the bowel were suddenly allowed to enter the cavity. In other cases pressure or interference with the circulation caused gangrene and a softening of the tissues through which germs could enter.

We have still many things to learn about abdominal surgery, and not the least of these is the process of repair. A few thoughts may have been suggested, but I have little true light to throw upon the subject.

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DISCUSSION ON DR. DARLING'S PAPER.

DR. CHARLES B. NANCREDE, Ann Arbor: I do not think this is a paper that can be freely discussed in one sense of the word, as I think the ground has been thoroughly covered, and I have always held that those who have not had special experience in the line of any given paper have no business to discuss it. I mean by that, it is not easy for a man who has not experimented to get up and say on theoretical grounds that such and such a thing is or is not as opposed to the facts of experiments. Dr. Darling has conducted a whole series of experiments with great care, and has given us a resume of the experience of others as shown by the literature of the subject. I must confess that I have gradually come to the belief that we meddle too much with the peritoneum. To use plain English, I think I have killed quite a number of patients by my efforts to make thorough operations in appendicitis. When I operated for the abscess I wanted to get the appendix. I often got the appendix, but the patient died. I now leave the appendix in a great many cases and some of them get well. I do not know whether Dr. Darling mentioned the fact or not, but experimental research has shown that in a similar membrane lining the large joint cavities there is a marked difference in the results, whether we use plain water, some antiseptic solution, so-called germicidal, or whether we use a saline solultion. It has been shown that where arthrotomy is done for any purpose, suturing the quadriceps tendon, reuniting the fractured patella, removing the loose cartilage, that a substance is thrown into the joint which approaches the serum of the blood. A saline solution, which closely approximates the physical density of the serum and its non-irritating qualities to the synovial membrane, remain unaltered and intra-articular adhesions are exceedingly rare. I recently read a paper on that subject. If any of you will try to experiment by putting ordinary, plain, pure, distilled water into your eye and try the normal salt solution you will notice

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a marked difference. Try it on your nasal mucous membrane and see what the result is. You will notice a marked difference if you get the right temperature of the saline solution, and you will hardly notice that there is anything there. And so I imagine it is the same with the peritoneum. We want to avoid adhesions. We have to open the abdomen to relieve the effect of adhesions. In quite a number of cases of relapsing or chronic appendicitis I am satisfied that the real trouble is due to adhesions and not the appendix. After removing the appendix I have seen a distinct structure produced by the adhesions. If we can avoid adhesions in operating on these cases we avoid a great source of risk.

I was recently present at an operation where a fatal result followed removal of a tube and ovary. There was strangulation of the intestine which resulted from a single point of adhesion, The original operation had only been done a year or two previously. I cannot help thinking that it is the handling, sponging, rough treatment we give the peritoneum with the idea that asepsis is everything so far as life is concerned, which unquestionably set up these adhesions, as well as the solutions we employ in flushing the abdomen. They certainly have a great deal to do with it in my judgment.

DR. H. W. LONGYEAR: The paper is a very valuable one, as it deals with practical experiments and not with theory, and to the abdominal surgeon the records of such experiments are of great value. It teaches us dangers to look out for, and in that way prevents many bad results from the adhesions of which Dr. Nancrede has spoken. There is one method of preventing these adhesions that I think is a good one and should be borne in mind. It was first brought to my attention by Dr. Robert T. Morris of New York, and that is the use of aristol rubbed upon surfaces which you fear may become adherent. When the abdomen is opened certain surfaces that are left tear, as the end of the stump, or perhaps some peritoneal surface which has been denuded in some way. The adhesion has been torn away and cannot be closed by suturing. If the part is rubbed over with aristol adhesions will be prevented. I believe that is so. It diffuses and pre-

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vents the fibrinous deposit from forming adhesion to some other surface. I might say with reference to using salt solution it is certainly very valuable, and the same action is illustrated in its use in the bowel as an enema. If plain water is used it is often irritating, causes a good deal of straining and uncomfortable feeling afterward, whereas if the normal salt solution is used no symptoms follow. It simply acts as a mechanical agent.

DR. N. W. WEBBER, Detroit: It strikes me that there is a vast difference between the results obtained by experiments upon animals where the peritoneum is fresh and upon patients where there are pathological conditions of the peritoneum. The peritoneum is prepared for almost any amount of handling and almost any kind of flushing that you may give it. Whenever we open the abdomen in various operations calling for this procedure, we find in a large majority of cases that the peritoneum is very much thickened. It has been prepared for this procedure and almost any degree of handling in the presence of tumors, which by their friction have produced a tolerating irritation of the parts, may be resorted to without any great degree of danger. The peritoneum is much thicker as a result of the adhesion which have taken place in the presence of pus tubes and tumors that we find in the abdomen, so that where we have an abraded surface I have never felt that there was any degree of danger in almost anything I did to the peritoneum. I have sponged it out vigorously, inserted gauze with ardor, thrust back the intestines after the incision I had made, and this degree of toleration exists as a result of previous disease. This toleration is so great that you may use an injection of peroxide of hydrogen and almost anything else, and it is submitted to with impunity by the peritoneal covering.

DR. C. G. DARLING, Ann Arbor: In reply to Dr. Webber, I fully recognize the force of his remarks, that experiments upon animals do not give the same results as when applied to man. However it seems to me a very good plan to continue our experiments upon animals and apply the knowledge thus obtained to the treatment of individuals.

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THE TREATMENT OF PUERPERAL SEPTICÆMIA.

EUGENE BOISE, M. D.,
Grand Rapids.

The fundamental idea in the treatment of puerperal septicæmia is that it is essentially a surgical disease; that the condition which is dangerous to life, and which calls for professional interference, is a poisoning of the blood and nerve centers by products of microbic infection introduced from without.

There are various local manifestations of this infection, differential diagnosis, of which is of great importance as indicating the line of treatment to be followed. Unfortunately this diagnosis is often a matter of difficulty.

The original lesion caused by the infection, is, in the great majority of cases, primarily an endometritis. The process may not extend beyond this, or it may, by continuity of tissue, involve the tubes and pass over from these to the peritoneum, causing puerperal peritonitis. On the other hand, the tubes may remain healthy, but there may be a general infection of the entire uterine tissue; the muscular fibres and inter-muscular lymph spaces being involved, and this results ultimately in destruction of the peritoneal covering and secondary septic peritonitis. The lymphatics of the broad ligaments and their outlying glands also often participate in the process, and grave or even fatal systemic poisoning is the final result.

Again there may be septic endo-metritis with thrombosis of the veins of the broad ligaments, which may ultimately become infected, causing intense pyemia and death.

While it is true that puerperal septicæmia is essentially a surgical disease, there is one physiological fact that must not

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be lost sight of, namely, that there is always in the blood an anti-toxic element or power, enabling the system to successfully combat moderate amounts of poison. The two evident indications therefore, in the treatment of this condition, are:

1st. To remove or limit as thoroughly as possible, the source from which the toxic elements are supplied to the blood; and

2nd. To aid nature in her efforts to overcome the poison already in the system. In other words, to increase or strengthen the anti-toxic constituent of the blood.

It is to meet the first indication that surgery must be invoked, and it must be employed in whatever degree may be necessary to fulfill this indication, whether it be merely the thorough washing out of the uterine cavity, or whether it involves the removal of the uterus and tubes, with infected glands and lymphatics. More lives are lost through incomplete and ineffectual effort than through too great zeal. But the difficulty which all find in these cases, lies in determining what should be done and when.

This difficulty will always exist, but will be rendered less by thorough study of those conditions caused by infection, and of the combined thought and experience of other operators. By such study we may ultimately hope to arrive at a degree of accuracy in diagnosis, that will enable us to successfully adapt our efforts to the conditions existing.

I have said that almost invariably the primary manifestation of a puerperal infection is septic endo-metritis, which gives rise to toxines that are absorbed and cause constitutional disturbances. The first indication therefore, after the diagnosis of sepsis has been made, is surgical treatment of the uterine cavity. Some writers advise simply a thorough intra-douching. This I can sanction only in those cases where the operator is not accustomed to the use of the curetta.

The proper procedure is the careful, yet thorough and firm use of the douche-curette (dull) to all parts of the endometrim, washing away the debris with an antiseptic solution, followed by sterilized water. The choice of the antiseptic may be important. Corosive sublimate has been condemned

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because of the danger of absorption, and because it coagulates the albumen of the sub-mucus tissue and in this way limits drainage.

For these reasons creolin, or some similar safe antiseptic is advised. After the thorough use of the curette and douche the uterine cavity should be filled with iodoform gauze lightly packed and so arranged as to secure the most perfect drainage. The gauze may be removed in twenty-four or forty-eight hours and replaced either with or without douching. Many times one thorough procedure of this kind will permanently check the septic process. If not, if the temperature again rises, showing further absorption of septic products, the question arises, shall we again curette? Many operators advise against it, saying that it will consume valuable time, but I believe in the further thorough and careful use of the curette, with the douche and gauze packing, supplementing this procedure with constitutional medication.

At all times there must be repeated and careful examination of the appendages, the broad ligaments and the abdominal cavity, to detect as early as possible any extension of the pathological processes beyond the cavity of the uterus.

When the treatment above described fails to influence the septic manifestations, but on the contrary the rapid pulse and high evening temperature, especially if accompanied by chills, show conclusively that the system is being constantly poisoned by fresh and continuous absorption of toxic elements, the question as to hysterectomy presents itself. The surgical indication to remove the source of the poisoning still exists and becomes imperative unless the experience of the operator leads him to believe that the anti-toxic power of the system can ultimately overcome the toxins and establish convalescence. To decide this question oftentimes requires great nicety of judgment combined with the wisdom drawn from wide reading and experience.

If the evidences of grave constitutional infection persist, and if the uterine cavity has been thoroughly and properly treated, hysterectomy should be done. Nothing short of this will be effectual. It is not enough to open the abdominal

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cavity and finding purulent peritonitis be content with flushing and draining.

The septic peritonitis is secondary. The infection came either through the tubes or through the body of the uterus, and in either case that surgery is incomplete that does not remove both tubes and uterus.

There are other conditions for which hysterectomy has been urged. Lusk said in a paper read at Philadelphia, January 16, 1896, "One point which has impressed me concerns hysterectomy in the cases of pyæmia due to infected thrombi. Is not hysterectomy really indicated in such cases? The attack is ushered in by a violent chill followed by a high fever. Perhaps for thirty-six hours the patient seems to be perfectly well, but another chill follows. With care life may be prolonged, but the chills recur and as the multiple abscesses result from the distribution of emboli a typhoid condition follows and death ensues. Now after the second chill has occurred, and there is no longer doubt of the diagnosis, is it not desirable to perform hysterectomy and thus to prevent the spread of the pyæmic processes? It is in this line that I feel great hopes for the future."

Dr. Baldy in commenting on this says, "Why wait for a second chill if a reasonably positive diagnosis can be made earlier?"

Dr. Albert Sippel* advises hysterectomy in similar cases where there is purulent phlebitis due to infected thrombi, causing pyæmia. He says the thrombi form the culture medium from which from time to time toxines are poured into the blood. Also that "This form of puerperal disease leads, with very rare exceptions, to death. In such a case where the chills continue to recur and where the patient gradually fails I would attempt to save life hy removing the uterus."

He advises in such cases not only to remove the entire uterus, but to follow up and resect the affected veins as far as possible.

It seems to me that Sippel has given the correct indications for operation in these cases, namely, not till, by the constant

* Centralblatt Gynecologic No. 28, 1894.

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recurrence of the chills and the sure evidence of failure of strength and vitality in the patient, it is evident that life is in danger.

It would seem that Lusk and Baldy in urging such early operation had the fear that by metastases the chance for benefit by operation would be lost, but Sippel says, "It is not the metastases that make the chills and cause the principal danger, but the purulent thrombi at the original seat of infection."

On the other hand Hirst (in discussing Dr. Baldy's paper) stated that venous thrombosis is not an indication for hysterectomy, he having had twenty-five cases with only one death.

In one sense he is correct, thrombosis of the uterine veins is of itself not an indication for such a serious operation. We have all seen cases of phlegmasia occurring after childbirth where there was at no time apparent serious danger to life. Yet if these thrombi do become infected and a purulent phlebitis be set up, prompt surgical intervention is demanded.

Again we are deterred from operating oftentimes by the serious and apparently hopeless condition of the patient. The patient is apparently "in extremis," and without surgical help will surely die. The chances of surviving the operation even are slight. It is a serious question whether we are ever, even in such cases, justified in refusing the patient the slight chance that only surgery can give. I believe it is our duty to lay aside all our personal considerations and operate. But whether we should operate at once, without effort to improve the patient's condition, is a question that is not yet settled in my own mind. It depends somewhat on what the serious condition is due to. Whether the rapid, even irregular breathing, the rapid, almost imperceptible pulse, the disturbed mental condition, etc., are due to exhaustion or the action of the poison on the nerve centers. We all believe it to be the latter. Then the question arises, what effect does the poison have on these centers of respiration and circulation?

Is it a form of "shock" or is it pure paralysis? I believe it to be an excessive irritation of those centers. Especially

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do I believe this to be true in septic purulent peritonitis, where death comes sure and swift with all the signs of collapse.

If this be the case is it not possible that by large doses of nitro-glycerine and codeine, and especially by intravenous injection of large quantities of hot saline solution, supplemented by frequent rectal injections of the same, we may bring the patient from an apparently extreme condition to one allowing rapid surgical help? This is a purely theoretical suggestion, but one I believe to be worthy of consideration. Until recently it has been said, with too much truth, that medicine furnished no remedy that was of value in the treatment of septicæmia, but I believe this can no longer be said.

The recently discovered "serum therapy" has furnished us remedial agents powerful in combating various toxic conditions. In the streptococcus anti-toxin we have a remedy which has been used, with apparently the best results, in various forms of poisoning from streptococci. It has been used with benefit in erysipelas, scarlet fever, and some cases of puerperal infection. It seems to be antidotal to this form of poisoning. Unfortunately puerperal infection is not always amenable to this remedy because due to other poisons or combinations of poisons. But we have in nuclein another remedy which I believe to be very potent in all varieties of puerperal infection because its remedial effect is due, not to any special antidotal action, but to strengthening and increasing the normal antitoxic elements in the blood. Several months ago I advised its use in a case of puerperal sepsis which seemed to be hopeless. It brought temporary relief only, I now believe, because the doses were too small, and the seat of infection, the purulent uterus, was not removed. Since then I have used it with benefit in various septic conditions.

Dr. Hofbauer, of Vienna, has recently written on "The Use of an Artificial Leucocytosis in the Treatment of Septic Puerperal Processes,"* in which he narrates several cases treated by nuclein.

* Centralblatt fur Gynecoligic Co., 17, 1896.

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He gives as theoretical reasons for its use,

1st. The promptness of its influence on leucocytosis.

2d. The absence of unpleasant complications or effects; and

3rd. The fact that, by its internal administration, under the influence of the pancreatic secretions, nucleinic acid is set free, as demonstrated by finding it in the chyme, from which it passes into the blood.

He also gives as among its most marked effects,

1st. The rapid, favorable influence on the general condition of the patient—from a state of apathy to one of bright, quick mentality. The icteric color of the skin passed away and the appetite improved.

2d. The local effects were equally good. Puerperal "ulcers" rapidly took on a healthy appearance and healed. The discharges from the septic uterus rapidly lost their odor and purulent character and lessened in quantity.

3d. The influence on the temperature was marked. Often after the first dose there was an increase of temperature to be followed by gradual decrease. The remissions were longer and more pronounced and the exacerbations slighter till restoration to the normal occurred.

The small experience that I have had in the use of nuclein in septic conditions confirms in every respect these statements, except that I have not dared rely on its internal administration, but have always given it hypodermically.

We have then in the streptococcus anti-toxin and in nuclein two powerful agents that we may call upon to aid us in our combat with puerperal septicæmia. With their aid surgery may wrest desperate cases from death, where without them it would fail. On the other hand, without the aid of proper surgical procedures to remove the source from which the poison is supplied to the blood, no therapeutic agent nor combination of agents could succeed in those severe cases that we too often see.

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DISCUSSION ON DR. BOISE'S PAPER.

DR. WALTER P. MANTON: I was very much interested in Dr. Boise's paper, as several of the points brought out were new to me. There is very little to be said in regard to the etiology. We all know that as a rule ninety-nine cases out of one hundred originate always from some external source if we include pus tubes or infection from gonococcus. I believe, from my own experience, that in the vast majority of cases early curettage will prevent or obviate all subsequent symptoms. The course of treatment laid down by Dr. Boise in his paper seems to be the correct method of treating such cases. I should differ somewhat from the doctor's views in regard to the kind of curette to be used. I believe that if one is skillful in the use of this instrument that the dull wire curette has no place in the armamentarium of the obstetrician. The reason why some of these cases have to be curetted several times is simply because a dull wire curette is used. If a sharp one is used carefully the decidual membrane and remnants of tissue can be easily removed from the uterine cavity and then the cavity thoroughly disinfected.

Another point: I should not agree with the doctor in regard to the method of packing. I should pack the uterine cavity firmly, not loosely, with iodoform gauze so that the entire space is filled, and then the vagina loosely with the same material. I have expressed this idea on previous occasions before this and other societies, but I wish to say that the object of packing the uterus firmly is three-fold. In the first place by so doing we stimulate the uterine contractions; the iodoform gauze acts slightly as a hemostatic and we get drainage. The serum will percolate through the interstices of the gauze and find its exit in the vagina. Furthermore iodoform gauze introduced in this way protects the surfaces of the uterine cavity, and acting in this manner guards against further

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absorption of any septic material that may be present until the uterine mucosa is wholly or partially removed. The gauze also prevents obliteration of the canal by adhesion of the uterine walls, a condition which has been reported in Germany.

In a paper read before this society a few years ago I pointed out a variety of infection which I have never seen mentioned and which I denominated "late puerperal infection." In these cases the patient makes an excellent recovery, does well for a week or ten days, and then suddenly develops septic trouble. In these cases I believe there is a localized endometritis which furnishes a nidus for the propagation of germs, introduced either by the physician or the nurse, or find in some way entrance through the vaginal canal. In this variety of infection thorough curettage and packing have, in my hands, proved eminently successful.

I have not had any experience personally with the use of anti-toxin in the treatment of these cases. During my last term of service in the Woman's Hospital in Detroit we had a small epidemic of septic infection, three cases in different parts of the hospital coming down one after the other. In all of the cases the usual treatment was pursued. The third case recovered. I happened to be ill at the time, and Dr. Longyear and Dr. Carstens looked after the patients. The anti-toxin was used in the original case which recovered. Whether or not it had anything to do with the recovery of the patient I am not certain. I have never tried the treatment with nuclein, but I think it is a valuable suggestion, and if I am unfortunate enough to have any cases of this kind I shall give it a thorough test.

DR. A. W. ALVORD: The very interesting paper to which we have listened is chiefly remarkable for the sensible and energetic way with which it attacks this very serious disease—a disease which we have all dreaded all our lives in general practice. There is very little criticism I have to make. There are possibly one or two points that I might criticise and then make a suggestion or two. I would take issue with Dr. Boise as to the manner of packing the uterus, and also with Dr.

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Manton. I take it to be a vicious practice. I would also take direct issue with Dr. Manton in regard to the manner of curetting. I thing it is impossible to do what he has suggested. I think he never does it when he thinks he does it.

To go back to the question of drainage, it is a very important question here. Where we have a serious metritis or a septic tube the first thing to be done is to get rid of the cause of the poison. A small wire curette, and not a sharp curette, is the instrument by means of which you will get rid of much more of your septic material than you will in any other way. When you come to curette the ordinary uterus that has not been recently pregnant, you feel the rugæ very readily as you take off the endometrium. You all have been accustomed to curette the uterus after it has been pregnant, and you get no such sensation to your fingers. You cannot get it with a sharp curette, but you must be guided by your knowledge of the condition of things. You have a soft mass here which has an opening, but very little of a healthful condition about the uterus, that is now the seat of septic poisoning. You do not usually run across these cases until they are quite advanced. Curetting has not been done early, and you will find this to be true. The cases have probably been in the hands of men who did not use aseptic methods. We want cleanliness in obstetric work, which we do not get as a usual thing. When these patients come to you you will find uteri through which you can put a sharp curette very easily. You can use a wire curette with safety where you cannot use a sharp one, unless you are a skillful operator. In a large number of cases, when I began to curette in this form of difficulty, I never dared to use a sharp curette. I have done so since occasionally, but I have never obtained better results from it than the dull wire curette.

In regard to the matter of drainage, it does not seem to me either philosophical or rational to pack the uterus in the way described, for you have no veins to open, no fresh wound, but a diseased membrane, and you wish to carry off the germs that are continually producing the trouble. My custom is to take a pair of ordinary dressing forceps and pass up a strip of

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iodoform gauze the entire length of the uterus, letting it extend out of the external genitals. I perhaps will have three or four thicknesses an inch and a half wide; this acts as drainage. Of course, the douching has been done before you introduce the strips of iodoform gauze, and it consists of normal salt water. I do not use active chemicals in such cases. I believe you often do harm by using chemicals. I saw a case not long ago where I believe death resulted directly from the introduction of a 1–5000 bichloride solution. I do not mean to say that you can not, with the utmost care, douche the uterine cavity without bad results. But it seems to me that in douching the poison is driven from the tubes into the cavity of the abdomen, and within a few hours a good deal of trouble is set up that was not there previously.

One word in regard to the use of nuclein. I believe in it because I have had good results from its use. I use it hypodermically, but mostly by the mouth. If I have a tuberculous rectal ulcer to deal with, I believe chiefly in the use of nuclein internally. I also use it topically. I believe I have gotten far better results from its use by the stomach in different forms of tuberculosis than I have ever had by injection. I do not mean to say that it should never be use hypodermically, for I am still using it in this manner where the lungs are diseased. The real benefits of nuclein, when used internally, have yet to be known to the medical profession.

A MEMBER: What preparation do you use, and how large a dose do you give?

DR. ALVORD: I use teaspoonful doses of Parke, Davis & Co.'s preparation, made by Dr. Vaughan's assistant.

DR. H. W. LONGYEAR: The reader of the paper has said that puerperal septicæmia is essentially a surgical disease. So it is, I believe. But I also believe that it is becoming and will become in the future more of a medical disease, as he has intimated in his paper, by sticking to the use of antitoxin. I think it will prove to be a disease which must be treated by both methods very actively in order to get at the true and best method for its cure.

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Dr. Manton has mentioned a case which occurred at the Woman's Hospital that was under my supervision at the time. This was a marked case of cure from the use of anti-toxin. We had three cases come down about the same time, two of which died with the succession of symptoms which were exactly like those in the third case. At first they all had mild septicæmia, gradually becoming worse, and at last dying with the symptoms of peritonitis. This woman had gone on to the point where the peritoneal symptoms began just as the others did. She had in addition an erysipelatous blush, which first showed itself on the labium of one side, then extended over the buttocks and thighs, and in this respect she was worse than the others. The anti-toxin was administered to her, it being the diphtheria anti-toxin as prepared by Parke, Davis & Company. The first dose was administered at this stage of the disease; the abdomen had begun to be distended and the peritoneal pains began just the same as the others did. The first dose was not followed by any marked amelioration of symptoms for the first twelve or fourteen hours. In fact up to the administration of the second dose, twenty-four hours later, there was not much amelioration of symptoms, but after the administration of the second dose, her temperature was reduced, and within twenty-four hours thereafter it was nearly normal. After that time it did not come up to any appreciable height. She made a comparatively rapid recovery. In that case the intrauterine douches were used freely and vaginal douches of peroxide of hydrogen were freely used. There was in this case, as well as in the others, a grayish membrane which grew upon the abraded points in the vagina and vulva. In one of the cases that died we had an examination made of the material taken from the interior of the uterus, and a microbe was found similar to that of the diphtheritic bacillus. This is what led me to try diphtheria anti-toxin in the case. Since then we have had experience with another and similar case at the Harper Hospital. The woman had been prematurely delivered for albuminuria at seven and a half months. The case was under my direct supervision. The anti-toxin was tried with

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excellent results. The temperature ran high for three days and the patient was very ill. It was given in the same manner. I do not think the action is as the essayist states, but I believe it is the direct result of antagonism by assisting the antidotal power of the blood. I believe there is going to be a great future for the serum treatment of this disease.

I must take issue with the essayist, also with Dr. Manton, in regard to so-called drainage by packing with gauze. If I wish to stop hemorrhage, I plug up, and if I wish to drain, I keep the canal open. I do not plug it up. I think that is rational surgery. It is rational mechanical surgery.

As far as the curette is concerned, I believe to curette the surface of a uterus which has been recently delivered and go over the whole surface thoroughly is an exceedingly difficult undertaking. I doubt if very much good is obtained by the curette in cases of septicæmia, although as a routine method I resort to it. I try to get away everything. I believe packing with gauze is not necessary afterwards, as Dr. Manton says, for it does excite uterine contractions very much to the distress of the patient. She thinks she is having another childbirth, or that another placenta is being expelled, and she suffers as much. And so it is. It is a foreign substance about the same size. I do not think there is much gain by doing it. If you keep the cervical canal open, the uterine contractions will go on. You will find in some cases that you have closure of the cervical canal from flexion, or closure from trauma produced by laceration or something akin to it. If you keep the canal open, you will have free drainage and the uterus will contract. The proper way is to keep the canal open and by daily douching. The use of the curette should be followed by the thorough application of iodine and carbolic acid and a drainage tube introduced to remove all hardened blood clots, so that the discharge will be as serous as possible. I believe in this way you will secure the best results with the least discomfort to the patient. You can keep the canal open and use a return cannula for washing out. It is the only thing which should be used for that purpose. I agree with Dr. Manton that when we use a curette

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it should be a sharp one. If the practitioner is not skilled in its use it is better for him to use a dull one. In the matter of hysterectomy I take issue with the essayist. I do not believe hysterectomy has any place in the treatment of puerperal conditions. It would have a place if we could make our diagnosis promptly. If we could diagnose the extent of the infection, then it would have a place, but I do not believe it is within the power of human skill to determine that one thing. If the infection has extended beyond the uterine substance into the broad ligaments, which the chances are very much in favor of, then operation is not only useless, but you will have done injury to your patient in performing it and have almost positively denied her any chance of recovery. We all know that the majority of cases of puerperal infection get well without surgical interference. I therefore believe that an operation for this condition is not to be undertaken at present. I do not believe in it for the reason that we cannot tell the extent of infection. It is not like peritonitis or the rupture of a pus tube. These conditions are entirely different. However, when the surgical indications are clear the abdomen must be opened and the cause removed.

DR. C. VAN ZWALUWENBURG: The amount of secretion in forty-eight hours is considerable, and we want free drainage to carry it away. Put in gauze and it will absorb a certain amount of it, but there are sure to be pockets left behind, because it is practically impossible to pack a uterus in such a way that no pockets will be left. If the speculum is used while the gauze is being removed, so that the cervix can be seen, the secretions which have been retained will often be seen to follow the withdrawal of the gauze in surprising quantities. I have noticed this in cases that have come under my personal observation.

With reference to hysterectomy, I think the difficulty lies here, that we are not sure which patient is going to do well and which is going to die. If we really knew what patients were going to die without operation, it would behoove us to go ahead and do what we could. I agree with Dr. Longyear that we should give these patients a chance to get well.

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DR. W. F. METCALF: I think the paper which has been read is a good one and has covered the ground thoroughly. One of the speakers said he would not advocate hysterectomy simply because of the difficulty of making an early diagnosis. Upon the point of diagnosis in these cases, I think an important fact has been brought out by the pathologist—Bumm—who has isolated a germ which liberates its poison, or rather manifests the effects of the poison so slowly that the symptoms do not present themselves for one or two weeks subsequent to delivery. The fever begins gradually, and resembling malaria is mistaken for it. The discharges from the uterine canal have no odor in this condition. Pain and tenderness are slight or absent. After a day or two, by the use of quinine, our suspicion may be aroused that it is not malaria, and on careful examination we may find thickening of the broad ligament, perhaps only on one side, showing involvement of the lymphatic system.

The reader of the paper has said that the indication for a second curettement would be a recurrence of chill. Even in this peculiar class of cases the symptoms are not ushered in by chill. True, there may be chilly sensations. But from two to six hours following curettement there is a marked chill, followed by rise of temperature to perhaps three degrees higher than it was previous to curettement; but on the following day, almost invariably the temperature will be found to have fallen to 99°. I have had two such cases recently, one of which passed from under my observation. It was diagnosed by some physicians as hip-joint disease, by others as osteomyelitis, and by others it was supposed to be malaria; but two months later I received a report to the effect that an abscess had burst over the anterior superior spine of the ilium, and the patient died of exhaustion.

The next case was curetted with the symptoms as detailed, but on the second day following curettement, the temperature arose slowly and continued so for four or five days. In this case there was much involvement of the lymphatic system; the uterus was drawn to one side, and the uterine ligaments of the left side much shortened. The essayist said that heart

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failure in these cases was due to shock and irritation of the ganglia of the peritoneum and elsewhere. If so, I question the advisability of using nitro-glycerine. Nitro-glycerine will dilate the superficial capillaries when we already have paresis of the smaller vessels. Theoretically, it is not advisable. I have ceased to use it in these conditions, and prefer strychnia.

In reference to the curette, I prefer a sharp one. I think we need more hemorrhage in these cases. We may wound the endometrium more, but I think that is not harmful, for we are breaking up and loosening the secretions, and with more bleeding we get better results. There is more or less bruising from the thorough use of a blunt curette, which I think is objectionable.

DR. JAMES G. LYNDS: I regret that I did not hear the paper. I was late in coming in; but it appears to me an important point has been overlooked in the discussion, and that is there is more than one kind of puerperal infection, and the different varieties require different treatment. The variety presenting putrefactive changes which take place in the uterus has been pretty thoroughly demonstrated to be entirely different from what we generally call septicæmia, and the treatment of one is invariably the treatment of the other. We have putrefactive changes taking place in the uterus, and thorough curetting and washing out the uterine cavity ends the trouble. Germs are active in the uterus; poisons are elaborated there and find a habitat in the system. If you remove them you remove the source of the trouble. In the general form of septicæmia the trouble is not, as a rule, in the uterus. More often infection takes place through the vagina and external organs, and the poison is absorbed into the lymphatics, carried all over the system, and in that variety the streptococcus is the active cause. Curetting and washing out the uterus in that variety of cases do no good. It does not lower the temperature, and does not have the slightest effect on the course of the disease; whereas in the other variety it cuts short the disease. I know of no absolute way to make a diagnosis between one and the other variety at the beginning, so the routine practice of curetting and washing out the

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uterus does not harm, providing it is done properly. Repeated curetting does great harm in those cases. I prefer the dull wire curette for the reason that the necrosed material in the uterus comes away very easily. It is soft, and that is all you want to remove. You do not want to remove any of the healthy tissue. If you do, you open up new sources of infection, and if there is any poison left in the uterus you are more liable to get it absorbed; at the same time you all know very well that the uterine sinuses are plugged by blood clots. The bacteria that caused putrefaction gain entrance into the sinuses to a certain extent. The blood clots are infected, and they can be removed better with a dull curette than with a sharp one. If you use the latter the sharp edge will remove them only so far as the cutting edge goes, but with a dull curette, you can use more force and dislodge the clots. They are soft and easily come away, and you more thoroughly remove the poison from the interior of the uterus.

As to serum therapy, I have not had any particular experience with it in puerperal cases, but I simply wish to speak of one case that I saw during the last four weeks with symptoms very much similar to those Dr. Longyear has mentioned, with the exception that the patient did not complain of pain. These patients, when they have a severe infection, do not complain of much pain. They feel all right, apparently. Even if the abdomen becomes distended with other symptoms of peritonitis, you can usually make deep palpation of the structures, and they say it does not hurt them. It is because the nerve centres are not in a condition to respond, I take it; they are paralyzed from the effects of the poison. In that case the temperature did not run very high. There is not the ordinary relation between the temperature and pulse. The temperature will go down and the pulse become more rapid, as it did in the case I refer to, and it is not a good symptom as a rule. The patient got well, even after the pulse had been above 140, yet the temperature was 102° at the time the pulse was so rapid. She recovered under forced nutritive stimulants, whiskey and strychnia.

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DR. REUBEN PETERSON: First in regard to the kind of curette. I would take exception to the statements of Dr. Manton and others that we should always use a sharp curette in these cases. I believe it is a wrong practice, not on account of the liability of perforating the uterus or because the average practitioner is unable to use it correctly, but because of the conditions present in cases of septic endometritis. Baum has made a careful study of these cases. In one class the sinuses are open giving free access to the septic germs, while in the other there exists a granulation zone acting as a barrier to the further entrance of septic material. Now it is impossible, clinically, to distinguish between these two forms of endometritis. Hence if we use a sharp curette we are liable to open the sinuses and allow the entrance of septic germs which nature has tried to prevent by the formation of a granulation zone. It might be permissable to use the sharp curette providing we could remove all the septic material. But the investigations of Werth, resulting from examinations of uteri previously curetted, show that in all instances the curette fails of removal of the entire endometrium. Since, therefore, we are unable to remove all the septic material by the use of the curette, it follows that the remaining septic portions are liable to gain entrance into the sinuses providing the granulation zone is removed.

I would also take issue with Dr. Manton and others in regard to the custom of tightly packing the uterus after curetting in septic endometritis. In my opinion it is a bad plan and may be productive of a great deal of harm by shutting off the drainage. In the puerperal uterus we have a canal which is large enough to give good drainage. It is more important to see that the uterus is in a proper position so that gravity drainage will follow than to use gauze within the uterus packed ever so lightly. I believe that the bichloride douche is harmful in many cases. The trouble arises from the fact that the patient usually lies upon her back, and the uterus, being large, a retroflexed condition results and considerable of the bichloride solution is left at the fundus of the uterus. Care should be taken to see that the uterus is left in

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the proper position, and the bichloride douche should be followed by one of sterilized water. By following out this plan no harm will result from the use of bichloride. Werth has shown that better results after curettage are obtained by applying carbolic or some other caustic to the endometrium.

In regard to diagnosis of certain conditions demanding hysterectomy, I do not agree with Dr. Longyear when he says that it is impossible to make a diagnosis in these cases. I grant that it is difficult, but that we are shut off entirely in the future from making a diagnosis I believe to be incorrect. We meet with all classes and descriptions of puerperal sepsis. In some the tubes and ovaries are affected and abscesses occur in the adnexa. In others the peritoneum is affected, with the tubes and ovaries only slightly if at all. Again we find certain cases where there is no external evidence of trouble, yet we know the uterus is infected and that the patient is going to die from puerperal sepsis.

I would take issue with the gentleman who said that these cases all get well. On the contrary, these patients invariably die unless dealt with surgically. Where we make an examination and find no evidence of septic trouble outside of the uterus, no pyosalpinx, no abscess of the broad ligament, and we have curetted and drained and yet the patient has a pulse of 120 or 130, a temperature of 103° or 104°, the diagnosis of puerperal septicæmia is established without question. Radical means must be instituted, even to the point of removal of the uterus, if we are to stop the spread of the infection. Whatever is to be done must be done quickly.

Dr. Lynds spoke of there being no pain in these cases. This is true because there is no peritonitis. Peritonitis is the last stage of this condition. In one case which I reported before the American Medical Association I could find no evidence outside of the uterus of any septic trouble. The patient had been curetted twice, the temperature was 104° and the pulse 140. She was a very sick woman, and something had to be done or else she was bound to die. Believing the septicæmia to have originated from septic absorption through the uterus, I removed this organ. I found the peri-

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toneum deeply injected, but with this exception there was nothing indicative of the serious septic condition. An examination of the uterus after the operation showed minute abscesses scattered through its walls. Just before death, which ensued in about two days, a puerperal peritonitis supervened, and then she experienced pain which up to that time she had been free from. The objection may be raised that these are cases of general infection, and that surgery can be of no avail. I do not think that we are justified in taking this view. Dr. Henrotin states that in cases of appendicitis which have resulted in virulent peritonitis, and everything looked as if the case were hopeless, it is still our duty to operate and to give them the one chance for life. Perhaps the future will show us how to improve our methods of diagnosis and operating so that more of these cases may be saved.

DR. EUGENE BOISE: The ground has been so thoroughly gone over that there is very little left for me to say. There are one or two points however that I desire to touch upon, and first in regard to fibroids as the cause of sepsis. If any of you are called upon to attend a woman during child-birth who has a fibroid tumor, you should be on your guard as to sepsis following it, for it is one of the prolific causes of death. The process of involution seems to cause a sloughing condition in the fibroid itself, and death is very apt to ensue.

The question of gauze packing seems to have elicited considerable discussion, and there are one or two things I would like to say about that. Do not pack the uterine cavity too tightly with gauze, because you do not want to suppress the secretions; you want drainage. On the other hand, one gentleman said, "Do not pack at all because you want drainage." Gauze, like lamp-wicking, has the faculty of bringing about a process of capillary attraction. You place the gauze lightly against the surface of the uterus, it not only drains the fluid in the cavity of the uterus, but has a tendency to draw from the tissues immediately around it into the gauze itself and out through the vagina. Dr. Peterson says he does not believe in packing the uterus with gauze; that if left alone it will drain itself, and that packing is wrong. In the next

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breath he says, " Do not use bichloride because the uterus is large and tips backwards, and the bichloride will not reach the place it is desired to go, but may remain and be absorbed." The septic fluid in the uterus is just as poisonous as bichloride. You bring the gauze lightly in contact with the internal surface of the uterus, so that it will draw from the vagina.

As to the use of the curette, in the hands of Dr. Manton, a sharp instrument would be proper. I would not advise however the use of a sharp curette in cases of puerperal sepsis. I have been in the habit of using a dull douche-curette, because I could use sterilized water at the same time. I do not think it is wise to use the sharp curette partly on the ground covered by the gentleman who last spoke, and it is not necessary for me to go over that point again. As to hysterectomy, whether it is ever called for or whether it is not, is where the question of diagnosis comes, where the question of judgment on the part of the attending physician comes into play more than anything else. You have all of you seen cases of puerperal sepsis go on and die in spite of our best efforts. In those cases where you are confident from the temperature, from the condition of the patient, etc., that the patient is going to die from sepsis, and you cannot detect a pus tube, or something that you can put your fingers on, I think it is better to remove the uterus.

As to the question of chill, I am very glad this point was brought out by Dr. Metcalf. Those who do curette after sepsis may be greatly frightened by the severe chill, and fear it will kill the patient. If they will only keep the patient alive, the temperature will fall, and everything will progress as the doctor says.

As to nitro-glycerine, reference was made to paresis of the blood vessels being produced by it, and the doctor said that he did not want to give it because it caused paresis. The vaso-motor centres are not in a condition of paralysis, but of extreme irritation and contraction. Those of you who have operated and have used nitrite of amyl on the operating table when the pulse flagged and the patient seemed in *extremis*, have seen the face flush. Nitrite of amyl and

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nitro-glycerine are cousins. Nitrite of amyl causes relaxation of the arterioles, and nitro-glycerine acts in the same way. The teaching that shock is a paralysis of the vaso-motor nerves is wrong. We may denominate shock as a hyper-irritation of the sympathetic nervous system, and especially of the vaso-motor centres, causing spasm of the heart and of the small arteries. This causes a small pulse. The low tension which ge get in the arteries leads us to think that we have a case of paresis of the vaso-motor centres. It is due to the same condition affecting the heart, by which it does not relax. It is in a state of almost tetanic spasm, and comparatively very little blood is forced into the arteries, and consequently there is very little tension on the arterial walls. This has been demonstrated by electrical stimulation of those nerves which supply the heart, and it has been shown that in spasm of the heart, caused by electricity, we get very low arterial tension.

As to the question of diagnosis, I have nothing further to say except that there is one important point for us to bear in mind, and that is there are many cases of mild sepsis which get well.

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ABDOMINAL SECTION FOR DIAGNOSTIC PURPOSES ONLY.

J. H. CARSTENS, M. D.,
Detroit.

When Batty in America, Hogar in Germany, and Lawson Tait in England, at almost the same time, twenty-four years ago, removed slightly diseased ovaries and tubes for the purpose of bringing on the menopause and relieving dysmenorrhœa, they had little idea of the immense field they opened in the line of abdominal surgery. It took fifty years for the profession to accept the idea that it was necessary to remove all ovarian tumors. Progress was slow in the medical profession, as everywhere else, during the first half of the century. Now, at the fin-de-siecle, progress in every direction is rapid. That pioneer work of the three men mentioned above, in pelvic surgery, had opened up the whole abdomen, and all the organs within it and adjacent to it, to operative interference. The pelvic surgeon who operated on female pelvic organs soon found that he was obliged to do other things. That he would tear the bladder and would have to sew it up; there would be a rent made in the intestine which had to be carefully sutured. Being human, he often made mistakes, and what he thought was an ovarian tumor sometimes proved to be a floating kidney, which he would remove. He sometimes found that instead of a fibroid tumor of the uterus he had to deal with a hypertrophied spleen, and thus from a pelvic surgeon he became a general abdominal surgeon. With a courage gained by experience, and the consciousness that he could do all kinds of operations and work within the peritoneum with comparatively little danger to the patient, he was

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induced to operate on the different abdominal organs for various morbid conditions.

The ground has been thoroughly gone over, and many of the mooted points have been definitely settled, and the few remaining ones will soon be cleared up. Abdominal surgery pushes forward and is not contented with simply tackling the *palpable* morbid conditions within the abdomen, but offers its assistance to the general practitioner for diagnostic purposes only. There are many obscure, complicated cases which do not yield to ordinary medication; in fact, the patient becomes steadily worse. In this class of cases it seems to me that abdominal surgery offers hope to the patient: first, for the purpose of an absolutely correct diagnosis; and secondly, if the diagnosis shows that the case can be remedied by surgical interference, this can take place at the same time. This naturally refers, especially, to chronic cases; still, in a very limited number of acute cases, abdominal section is also indicated.

It is only after a thorough consultation, and watching the patient for a limited length of time, that operative procedures are justifiable. A correct diagnosis by exclusion must be made. Continual vomiting and cholera infantum or cholera morbus must not rashly be considered proper cases for abdominal section. But acute cases, coming on suddenly with vomiting, obstruction of the bowels, and with or without elevation of the temperature, but with a progressively increasing rapid pulse, directly point to some serious lesion, ulceration or perforation of the intestines or stomach; or invagination, knotting or hernias which cannot be easily detected by external palpation or digital and rectal examination. These kinds of cases, as I say, after proper consultation, that is, with two or three physicians, not only justify, but I think clearly demand operative interference.

When it comes to chronic cases here will be the largest field. It is easy to exclude, with the present knowledge and instruments of precision at our command, many of the diseases which formerly could not be recognized. Still, there always remain a certain number of cases which do not yield

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to any kind of treatment, and the patient can be seen to gradually become weaker and weaker, and ultimately will die if something is not done to relieve him. Renal calculi sometimes cause very little trouble, but gradually, as they grow larger, cause much disturbance and still are not suspected. Gall stones will accumulate in large numbers and become of large size, and never cause biliary colic nor jaundice, while the patient's health is gradually being undermined. Adhesions of the intestines, fibrinous bands or adhesion of the omentum, with partial constriction of the bowel, will sometimes cause great distress and disturbance, and still are very difficult to diagnose.

Some years ago a prominent citizen of a small city in the state called on me for diagnosis of some obscure stomach trouble. He had been to the medical centres of Europe and consulted the ablest physicians. He had been saturated with the waters of Carlsbad and Kissingen. The acid tendency of his blood had been neutralized by Vichy, and the waters of Cheltenham had permeated every blood vessel of his body. He had inhaled the balmy breezes of the Mediterranean and climbed the Alps of Switzerland, and still he became weaker and weaker. He was told he had nervous dyspepsia, or destruction of the gastric tubules. I carefully examined him, and could find absolutely nothing in the way of swelling, growths or tumors, and with the *occasional* spells of vomiting, I hardly suspected that there might be a constriction. I told him he was not in my line and that he should return to the general practitioner. He went abroad again, but returned home and finally died. The post mortem showed a plain non-malignant stricture of the pyloric end of the stomach. If I would have had the courage at that time and have suggested an exploratory operation, he would have grasped at it like a drowning man does at a straw. I could have found the trouble, and by a resection or gastro-enterostomy could have relieved him, and I believe he would have been living to-day and the picture of health. I was a coward. I was afraid of being accused of being reckless; of operating without any justification. I could relate case after case, from my former

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experience as a general practitioner, where a diagnosis could have been made and the right kind of treatment have been instituted if an exploratory abdominal section had been made.

Still, I even make this suggestion tremblingly, because I know when you make this assertion there are many men without knowledge and experience who will jump in and operate unnecessarily and recklessly; who will plunge in "where angels fear to tread" without conscience and without that knowledge of differential diagnosis; without that power of careful observation and repeated consultation which only would justify any such operation. Those of us who limit our practice to abdominal surgery, and who have more or less success, have grave responsibility. If we report a series of cases with a small mortality, we show the general practitioner that we can do these operations with little danger to life. Or, if they see us operate and perform an abdominal section or a vaginal hysterectomy in five, ten to fifteen minutes, then there will be many who think that abdominal surgery is, as my friend down in Indiana says, "as easy as rolling off a log." Others will recklessly operate without having had any experience; perhaps have seen a number of cases performed at a distance, but they do not know the trials and troubles and anxieties, and the gradual picking up, little by little, of the different points which have made abdominal surgery a success.

If the abdominal surgeon discourages indiscriminate celiotomy by every "Tom, Dick and Harry" he is accused of being jealous and envious. That he is afraid that some young man will develop and become an abdominal surgeon. So far as I know this is not true. All the abdominal surgeons I know have helped and assisted young men to learn the details of abdominal surgery and to become abdominal surgeons; but these young men had had considerable experience. They had assisted at a great many operations. They were going to make this their life work. They were going to locate in medical centers where they could expect to get many abdominal sections in their future career. But for a man in some out of the way place without facilities to do an abdominal section it is, as a rule, reckless. It may be a case of emer-

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gency where the patient cannot be moved and would die unless prompt help is furnished, but ordinarily when the patient can be moved he should be sent to a well equipped hospital where every facility is at hand.

Looked at from the standpoint of common, filthy lucre, if the general physician or surgeon could do a laparotomy or two a year he will get very little pay for it. He must buy always a number of instruments. His reputation is not much enhanced if the patient recovers, and it will be very much injured if the patient should die. He has, as a rule, no proper assistance, no good nurse, no sterilized water, towels, clothing, etc., in fact every thing is against him and very little in favor of him.

Every one who wants to do abdominal section or lives in some center where he can at least expect to do quite a few every year should thoroughly prepare himself so that he is competent to treat all the complications met with. Sometimes the simplest case turns out to be the most severe and difficult, so that every one should be thoroughly prepared to meet every kind of emergency, and that means a good many instruments of all kinds.

As I said to a doctor some time ago: "For you to attempt such an operation without any training whatever, and without even knowing what the trouble really is, I would consider reckless; in fact it would be unjust to the patient. You have no right to trifle with human life in that manner no matter if the patient trusts you and the family will not blame you if she dies. The question before you is, are you doing the highest ultimate good to the patient as you have sworn to do by the Hippocratic oath? Do you think that you can operate as well as some other persons who have had more experience? I think you would not say yes. You must admit that such a patient has 500 per cent. more chance to live if she goes to a hospital and is operated on by an experienced man than if you operate on her without the facilities that a hospital offers."

You will allow this digression. I simply wanted to make the point that if an abdominal surgeon talks about the diffi-

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culties of these operations and he discourages others he is accused of being afraid of competitors, while if he emphatically insist on the necessity of even an exploratory operation in some cases and that it can be done without danger, he is liable to spur on a lot of ambitious but inexperienced men who will recklessly proceed to open the abdomen for the most trivial causes. Hence it is very difficult, it seems to me, to draw the exact line.

I want to call the attention of the general practitioners to the fact that there are frequent cases of diseases or disturbances of the stomach, liver, spleen, kidneys and so on which cannot be diagnosed except by an exploratory abdominal section, and that this can be done with almost no danger to life if done in a hospital well equipped for performing celiotomies. That only in exceptional cases is it justifiable to do such operations at the patient's home because when an exploratory operation is made every facility should be at hand and the surgeon should be thoroughly prepared to do any operation which may be revealed necessary by the exploratory celiotomy. Otherwise the patient is subject twice to the danger of the anesthetic and the other accidents that accompany the simplest operation.

In conclusion of this rambling paper I will say:

1st. That in rare, acute cases with symptoms dangerous to life, indicating disturbances around the gall bladder, pylorus and cæcum, an exploratory operation should be promptly performed.

2d. In chronic, obscure cases where the symptoms point to disease of some of the organs within the peritoneum an exploratory operation should not be delayed too long.

3d. In either acute or chronic cases a consultation or a number of them should be held and at least an inferential diagnosis made.

4th. Such exploratory operations should always be performed in a well equipped hospital and the surgeon should have at hand every means to perform any kind of abdominal operation if the case should demand one.

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A REPORT OF SIX CASES OF OPERATIVE APPENDICITIS.

W. P. GAMBER, M. D.,
Stanton.

In presenting the following cases at this meeting, I do so because I think they are interesting ones, and hope to hear them discussed with interest to all present. There is, perhaps, no disease about which there has been so much written during the past few years as there has been upon appendicitis; and again, there is no disease upon which the physician generally needs practical information any more. The symptoms presented in different cases vary so much that it is only by the analysis of these various cases that we become more proficient in their successful management.

CASE 1.—*Subperitoneal Abscess: Operation; Recovery.*—Mr. E., aged 59; painter and paper-hanger by trade. I was called to see him July 3, 1894. He was taken sick two days previously with a chill, which was accompanied by more or less pain throughout the abdomen. His previous health was good. Pain now limited to McBurneys' point, but not severe enough to require opiates. Temperature, 102.5°, but in forty-eight hours it dropped to normal, where it remained for several days.

Feeling confident that this was a case of appendicitis he was advised to remain quiet in bed until the soreness disappeared, and that by so doing he might avoid an operation. This advice he did not heed, however. He felt like getting up and did so. Walking about the house aggravated the pain, and in a few days his fever returned, lasting three or four days. After a few days absence of fever it again re-

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turned, lasting about the same. At about this time Dr. L. S. Griswold, of Big Rapids, was called in consultation. My diagnosis was confirmed by him and an operation advised, but as the symptoms were not urgent it was deferred for the time being. During the next six weeks he continued about the same, except that he was gradually growing weaker. The fever still continued to return once a week, each time lasting about three days; and, as he expressed it himself, he had the better of it a little more than one-half of the time. This served to stimulate his hope of getting well without an operation. Finally, on the 11th day of September, without openly giving his consent, he said: "I have stopped dictating." His wife then said: "Prepare and operate;" so on the 13th day of September Dr. Griswold arrived from Big Rapids and we operated.

An abscess cavity, containing about one-half pint of greenist, foul-smelling pus, was found subperitoneal. There were two places where this cavity tended to point toward the external surface, one just above the middle of Poupart's ligament on the right side, and the other at the upper crest of the ilium about four inches posterior to its anterior superior spine. Openings were made at these points and a rubber drainage tube put *in situ*. He recovered nicely from the shock, and after four days there was slow and continuous improvement without any rise of temperature. The cavity was cleansed twice daily, the drainage tube gradually removed, and in two weeks was replaced by gauze. On election day, November 6, the wound was entirely healed, and he rode in his carriage to the polls and voted.

A bacteriological examination of the contents of this cavity showed the following germs present: bacillus coli communis, staphylococcus, bacillus pyocyaneus and streptococcus.

The general peritoneal cavity was not opened, and so far as we know this man still has his appendix.

CASE 2.—*General Suppurative Peritonitis; Death; Autopsy.*—Miss R., aged 16. She was taken sick in bed September 4, 1894. During the four weeks previous she complained of feeling languid, with loss of appetite. I was called

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September 5, at which time the temperature was 100.5°; pulse, 125.

On September 6 and 7 the temperature and pulse were about the same, with a tendency to profuse diarrhœa and marked tenderness extending from McBurney's point upward along the course of the ascending colon. September 8: Temperature, 99.5°; pulse, 100. September 9: Temperature, normal; pulse, 80; and with general improvement. I did not see her again until September 11, at which time the tenderness in the right iliac region was increasing. Temperature, 102°; pulse, 120. September 12: Temperature, 103°; pulse, 125. The pain and tenderness had increased some, extending across lower part of abdomen. I was by this time about convinced that it was a case of general peritonitis due to perforation of the appendix, or that possibly it might be due to perforation of a typhoid ulceration. The day following, September 13, an experienced surgeon was called in consultation. After a thorough examination and careful consideration of all the symptoms, he gave it as his opinion that the case more strongly favored typhoid fever. The temperature at this time was 102°; pulse, 120. During the next few days the temperature remained about 101.5°; pulse, 125; and I had now become satisfied that it was a case of general suppurative peritonitis, but owing to general paresis of bowels which had become apparent, and some edema over a portion of the abdomen, it presented itself to me as a hopeless case for operation. After a few days more she suddenly went into a state of collapse, after which she only lasted seven hours.

Autopsy.—Peritoneal cavity contained about one and one-half pints of pus having a fecal odor. The parietal peritoneum to within an inch of umbilicus, but some higher on the right than on the left side, was inflamed and thickened, and a large portion of it had sloughed off, leaving the abdominal muscles bare. The appendix was folded on the cecum posteriorly and to the right, where it had become firmly adherent at distal extremity. The end of the appendix had sloughed off, leaving the diseased end in a necrotic condition.

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The opening of the sloughing end was free and allowed passage of fecal matter into the peritoneal cavity. The only place where the visceral peritoneum was affected was posterior and to the right lateral side of the lower three inches of ascending colon. The tissues about this point were quite extensively necrotic and it seemed to be the original site of a once walled-in abscess cavity which included the necrotic end of the appendix, and that the second rise of temperature was the result of the rupture of this abscess cavity into the general peritoneal cavity.

A bacteriological examination showed the following germs present: Bacillus coli communis, streptococcus and staphylococcus.

CASE 3.—*General Suppurative Peritonitis; Operation; Recovery.*—Mrs. B., aged 30. I was called to see her June 25, 1895. She had been suffering four or five days with marked tenderness at McBurney's point. On Monday, June 24, she did her washing. During Monday night this pain was intensified, and on Tuesday morning when I was called she was suffering with paroxysms of severe pain, which by 10 o'clock, A. M., had become so severe that it was necessary to resort to hypodermic injections of morphine. Diagnosis was now made of appendicitis with probable perforation. The temperature began rising about noon, and at 8 o'clock P. M. it was 101.5°.

On June 26 the pain and tenderness over abdomen was becoming general, morning temperature, 99.5°; evening temperature, 102.8°. It was quite apparent that there was peritonitis, and that it was rapidly becoming general. Dr. Griswold, of Big Rapids, was called. He came the next morning, June 27, and concurring in my diagnosis, we proceeded at once to operate, which was at this time about forty-eight hours after I was first called.

After making the usual vertical lateral incision and opening into the abdominal cavity, about one-half pint of pus escaped from the general peritoneal cavity. The parietal peritoneum and the visceral peritoneum covering the cæcum, the lower part of ascending colon and of the appendix were very much

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congested and intensely red. The appendix was perforated on the anterior surface about one-half inch from the cæcal end. This was removed, the peritoneal cavity thoroughly flushed with warm sterilized water, a glass drainage tube put in place, and the wound closed except one provisional stitch. She recovered nicely from the shock of the operation, and for the first seven days following everything progressed to our satisfaction and the temperature gradually declined to near the normal point. During the next four days there was a gradual rise in the temperature until it reached 101.5°, and I became very anxious, fearing that there was still an abscess cavity somewhere within the abdominal cavity, but we were soon pleased to learn that it was nothing but a stitch abscess.

When the pus is required to flow out over the freshly cut tissues we could hardly expect the escape of infection. There was pus formed about the deep stitches which brought the muscular tissues together. After the maximum temperature, as stated above, was reached from this cause, it gradually declined and became normal on the fifteenth day after the operation and so remained. The glass drainage tube, which was difficult to keep in place after a few days, was replaced on the fifth day with a rubber coil of smaller caliber, and this was again replaced on the tenth day with gauze. By the eighteenth day there was no more discharge, the gauze was removed, and the provisional stitch closed. The wound was all healed at the end of the fourth week, and during the seventh week she was about the house doing light housework, and at the present time she is enjoying good health.

A bacteriological examination showed this pus to contain the following micro-organisms: Bacillus coli communis and staphylococcus.

CASE 4.—*Local Peritonitis followed by General Peritonitis: Operation; Death.*—Miss B., aged 17, was taken sick on the morning of Nov. 8, 1895, with more or less pain throughout abdomen, but most severe in stomach and with slight tenderness only at McBurney's point. When called at 4 o'clock P. M. on above date the temperature was normal; pulse, 110. As the case was a few miles in the country a report from her

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the following day did not indicate much change, but saw her again on the 10th at 2 o'clock P. M. Temperature, 102°; pulse, 125. The pain was now quite marked and mostly limited to right inguinal region, and a diagnosis of appendicitis was made. There was also paresis of bowels. November 11, I discovered pus in right inguinal region where it was evidently walled in. There was also some tumefaction, but pain and tenderness was less; temperature, 100°; pulse, 120. Having decided that an operation was necessary, I had consultation on the 12th with physician No. 1, who did not think there was pus there and that an operation was unnecessary. November 13, I called physician No. 2 in consultation. He agreed that it was appendicitis, but thought she would get well without an operation. I still adhered to my opinion, but could do no better than to await results. Action of bowels had now become restored and general condition some improved. About three days later the action of bowels became quite profuse and what passed looked very much like pus and my pus cavity began to grow smaller, indicating that it had ulcerated into the bowel. Bowels continued loose for about ten days, at the end of which time the abscess cavity was apparently gone, and for a few days all seemed to be going well, when on November 30 she had a severe chill followed by high fever, a recurrence of pain as at first, and refilling of the abscess cavity. On December 4, I made preparation for operation and took physicians No. 1 and No. 2 with me. Condition at this time as follows: Temperature, normal; pulse, 140; marked tympanites; paresis of bowels; and it required about one and one-half grains of morphine daily to keep pain under control. Physician No. 1 did not at this time think it necessary to operate, but physician No. 2 agreed with me and we operated. After making the usual incision and opening peritoneum nearly a pint of pus escaped from a walled-in pus cavity which excluded the appendix. The inner wall of this cavity was bounded by cæcum and lower end of colon, and as this part outlined the area of dullness it seemed unwise to go any further, yet I feared that this second attack had resulted in infection of the general

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peritoneal cavity, although there was no positive evidence of same. Wound was thoroughly cleaned, closed all but one provisional stitch, and left with gauze drainage. She recovered nicely from the shock of the operation. The paresis of bowels never yielded, even with large doses of strychnine and Faradic electricity until six days after the operation, but she was unable to retain but very little nourishment and had become so exhausted that death took place two days later. No post-mortem was held, but wound was examined and put in proper condition. A fecal fistula was found on outer and posterior surface of cæcum, at which point the pus discharged into bowel following first attack. The adhesions, walling in this pus cavity, which were still quite firm, were broken up. This allowed the escape of a bloody serum mixed with pus from the general peritoneal cavity. Now considering that she could not get well with the pus in the general peritoneal cavity we have a few points for your consideration. In the first place an early operation would have prevented this serious complication and given the patient an excellent chance to get well. At time of operation, as I have before stated, there was no positive evidence that there was pus in the general cavity. She had not suffered from pain after the operation as she had before. There was no time, in my opinion, that she could have undergone a secondary operation. There was nothing to account for the continuous failing except the paresis of bowels, which in turn might be accounted for by the presence of pus in the general cavity, but paresis of bowels many times persists after general cavity has been cleansed. If at the time of the operation, in addition to what was done, an exploratory incision would have been made in median line under thoroughly aseptic precautions, and if found contaminated a thorough cleansing would probably have saved the patient; but in the opinion of experienced surgeons now present how far would we be justified in going in this or any similar case?

A bacteriological examination revealed streptococcus, staphylococcus, colon bacilli, and diplococcus of Frankel.

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CASE 5.—*Subperitoneal Abscess; Operation; Recovery.*—Miss M., aged 21. This was a patient of Dr. N. E. Bachman, of Stanton. Dr. Black, of Greenville, and myself were called in consultation December 18, 1895. She had been sick a little more than two weeks with fever, simulating typhoid fever; temperature ranging from 101° to 103.5°; had not suffered any particular pain in abdomen, but there had been considerable aching in lumbar region on right side. The doctor had discovered what seemed to be pus in right inguinal region. Consultants agreed that there was a pus cavity, probably due to appendicitis, and that an operation was necessary. He sent for Dr. Griswold, of Big Rapids, who came December 20 and operated. Condition of patient as follows: Temperature, 102.5°; pulse, 135; stomach was in good condition and able to take plenty of nourishment, especially milk.

Upon making the usual incision, pus, having a fecal odor, escaped freely. The cavity which contained about one pint, mixed with a large quantity of sloughing connective tissue, was thoroughly walled from the peritoneal cavity. The pus had burrowed backward and upward about lumbar muscles posterior to right kidney, making quite an extensive cavity, so that a counter opening was made in this location. The drainage used was rubber tubing and gauze, and the cavity washed out daily. Recovery was slow, but continued. At present she is the picture of health, but there is still a small sinuous opening with a very small quantity of discharge.

Germs present: Colon bacilli and staphylococci.

CASE 6.—*General Suppurative Peritonitis; Operation: Death.*—A little child, aged 6, daughter of Mr. and Mrs. F., was taken suddenly ill on the morning of March 22, 1896, with a chill, high fever, and great prostration. There were marked nervous symptoms, and I feared meningeal trouble. At this time there was some retraction of abdomen and a little tenderness. March 23, A. M., general condition unchanged, but I discovered a little hardness in right inguinal region as if there was localized peritonitis. I used anodynes to control some pain which was present, and ordered that she

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be kept very quiet. March 24, A. M., the suspected peritonitis now fully realized. It had become general and all efforts to get an action of bowels were without avail. I advised an immediate operation as the last and only hope for the child. Consent was granted, and at 4 o'clock P. M. Dr. D. K. Black, of Greenville, arrived and assisted in the operation. Condition at this time was as follows: Temperature, 103°; pulse, 145; and bowels very tympanitic. After the usual incision and opening into the peritoneal cavity was made we removed about six ounces of pus which had worked its way among the coils of the intestines. Large flakes of exudative material had already formed. The appendix, which was gangrenous for an inch of its distal end, was removed. The visceral and parietal peritoneum was very red and congested. No adhesions had formed. Wound was closed except one provisional stitch and a glass drainage tube put in place with candle wicking by its side. Child recovered well from the operation and seemed to be in as good condition after as before the operation, but she soon began to fail and died early next morning. This case was noted for its extreme severity. I can not refrain from urging the importance of keeping these patients quiet; in fact, all of these cases with pain or tenderness in right inguinal region and having symptoms pointing towards appendicitis should be kept quiet. If there is any formation of pus in the general peritoneal cavity, the absolute quietness gives the advantage of walling it in, and this means a far better chance for the patient. This we find more difficult to do with children, and especially so with this child. She was very uneasy and would toss about in bed. All of these cases go to show the benefits which can be derived from an early operation. Although it is not always possible to do so, as you will see in the report of above cases, yet when we are satisfied that we have pus to deal with, either in the general or walled-in cavity, we should encourage early operation as by all means the best and safest, and which will show a larger per cent. of recoveries.

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DISCUSSION OF DR. GAMBER'S PAPER.

DR. ARTHUR S. AUSTIN: One of the cases reported was very interesting to me in that it showed the necessity of early operation. It is an exceedingly difficult matter to get patients to consent to an early operation for appendicitis, and we must do all we can to educate the public as to the imperative necessity of early operative interference. Since last June I have had fifteen (15) cases of appendicitis. Of this number twelve (12) were operated upon, two were *in extremis* when first seen and died without operation, one recovered without operation, but has had several recurrent attacks. Some of the cases operated upon were cases of large abscess. Three were cases of diffuse peritonitis, the abscess having ruptured. All the cases that were seen and operated upon early recovered except one, which presented a very complicated malformation of the intestine, necessitating a second operation for the closure of a fecal fistula, and the patient died from the shock of the operation.

One case which Dr. Carstens operated on for me is interesting from the fact of the extreme early age at which it occurred, a little girl 2½ years old. This case was one of appendiceal abscess and made a complete recovery.

DR. J. HENRY CARSTENS: We ought to be thankful to the doctor for reporting these cases of appendicitis. They are magnificent illustrations of the point which I have always taken, that appendicitis should be operated on promptly. The fact that these cases have occurred in the doctor's practice in so short a time certainly shows and convinces everyone that appendicitis is not a simple disease and that patients die of it. I have been sometimes told by physicians that appendicitis is a simple thing and that they see lots of those cases and they always get well. They say they apply poultices and such treatment, from which they recover. They do not do

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anything of the kind. I admit that there are a certain percentage of cases which recover, but it is very small. I do not know how many attacks some of the doctor's patients had, but doubtless some of them had previous attacks, probably one or two of which the doctor did not get a history. They may have been mild, and if so, that was the time to operate on them. Even the laity are beginning to show good sound sense in regard to certain subjects. A common, everyday man came into my office day before yesterday and said: "Doctor, I have got appendicitis. I have had several attacks of pain. I know it is a bad disease, and I don't want a repetition of these attacks. I want you to operate on me." I said to the man, "You have good common sense." We do not know when the appendix will rupture and the patient die. The paper shows that patients with appendicitis do die; not all cases, of course, but the vast majority of them terminate fatally unless operated upon. If they do not die with the first attack they may during a second or third attack, and a man who has an inflamed appendix, be it apparently ever so mild, has a volcano in his abdomen which may rupture at any time; and there is only one way to remedy it, and that is to remove the appendix early. There is practically no danger connected with this operation if we take the records of the men who do these operations, such as Morris, Murphy, McBurney and many others. Those men operate whenever possible the first day of the attack, or in the interval, and nearly all their patients recover. They probably do not have more than one death in a hundred. The cases that rupture, or that have been tampered with week after week with all kinds of treatment and then are finally operated upon, generally die, or a large proportion of them. At least thirty-five or forty per cent. of them die, so that it simply illustrates the same old story that we should try to impress upon the general practitioner that as soon as a diagnosis is made in these cases they should be operated upon. They are comparatively easy of diagnosis, particularly if you look for them. If you do not look for them, or if you wait for one or two weeks, you may think it is typhoid fever or something else.

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Dr. Austin, who has taken part in this discussion, practices in a small town, but he keeps his eyes open. Eternal vigilance is the price of liberty, and it means the price of his patients. He has told us of fifteen cases inside of a year, and some of them were bad cases, others were mild. As far as I can learn only fifteen per cent. of the cases absolutely recover without operation, only have one attack and are permanently cured, and some of them have pus, but the appendix becomes adherent along the intestine and around the cæcum, pus is discharged into the bowel and the appendix contracts, shrivels up, and the patient gets well without operation and never has a recurrent attack. These are the exceptional cases. The others who have a second and third attack do not fare so well. They may die at any time if not operated on. Appendicitis is a serious disease. With the present state of our knowledge, with the obscure symptoms, we can not always diagnose these cases early. We have a case in the Harper Hospital at the present time, a man who traveled over this state for five days with appendicitis. He traveled from Jackson to Grand Rapids, Lansing and other places, and his temperature never exceeded 99.6°. It was only 99.2° when we operated upon him. He had quite an abscess. It might have ruptured and his chances with general peritonitis would have been small. I am glad this paper was read. It teaches one important lesson, that appendicitis is a serious disease and that the only effectual method of treatment is early operation.

Dr. N. W. Webber: The great trouble in my opinion in cases of appendicitis is that the general practitioner is likely to hang on to them too long. The profession must educate the general practitioner up to the point that early operation is essential in order to cure the large proportion of cases. We must be positive and emphatic in our declarations and refuse to treat cases unless they submit to operative interference where it is indicated. The profession is to blame largely for such bad results, not only in cases of appendicitis, but in other diseases as well. General practitioners do not want to turn their cases over to specialists, and they hang on to them

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until the last ray of hope is gone, and the profession is largely to blame for it.

DR. M. WILSON: With reference to what has been said of the general practitioner, I think there are few cases where general practitioners hang on to their patients when they know that their lives are imperiled by appendicitis or any other disease. I think we might as well charge the specialists with being a little too enthusiastic for the fee connected with the operation, rather than for the good of his patient. We have a great many general practitioners whose judgment is as good in regard to cases of appendicitis as that of some specialists. Fifty per cent. of the cases of appendicitis which I have seen have recovered without operation. I do not say but that it does good to operate early, when you are sure that your diagnosis is correct and that you have pus; but I think there are a great many cases of irritation and peritoneal imflammation around the appendix that are needlessly operated on, and that the operation endangers the lives of such patients by the shock which it produces. Do not understand me as opposing operations in this disease. An operation is indicated where there is pus or where perforation has taken place; but for local peritonitis limited to the appendix there is no need of operating. Cases of relapsing appendicitis should be operated on.

DR. GEORGE E. RANNEY: What has been stated in regard to delay in operating upon cases of appendicitis is too true. I recall two cases which I was called to operate upon and found the patients *in extremis*. In opening the abdomen, in each case, I found the pelvic cavity filled with pus, and the patients only lived a short time after operation. A couple of other cases I operated on not long since. It seemed as though the cases were beyond hope, but as a last resort I operated on them and they both recovered. General practitioners too often hold their cases until an operation promises but little if any hope. In a large majority of these cases the operation is put off until it is too late.

DR. J. HENRY CARSTENS: I want to make an additional remark as to operating before there is pus. There is the

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point. Of course, there are cases of peritonitis due to appendicitis, but you can always diagnose them; you can always get your appendix; you can get your McBurney point. You knead the abdomen all over. If you touch the appendix the patient squirms and you get rigidity of the muscles over that region. You can detect it by inserting the finger into the rectum and feeling the swelling. By so doing it is almost impossible to make a wrong diagnosis. What I plead for is early operation before the formation of pus. I hold that there is practically no danger if you can operate on your cases the first day. How many do you suppose will die if operated on promptly? Give me a hundred cases to operate on when there is pus, and how many do you suppose will die? Which is the better plan of treatment? It is not fair and just to the surgeon to ask him to operate on cases when they are in *articulo mortis*, or when suffering from septicæmia. It does no good. If a patient dies under these circumstances you blame it to the operation. We should operate as early as possible, when there is little pus, or when it is walled in around the appendix, covered over by exudate; then we get good results.

DR. W. F. METCALF: If I understand the essayist correctly he makes an exploratory incision in those cases where he speaks of the entrance of pus into the abdominal cavity. I have not done such exploratory operations for that purpose, but I would think it preferable to the breaking up of the inflammatory wall which separates the abscess cavity from the abdominal cavity. I think it would add slightly to the risk in the case, but made under aseptic precautions by an abdominal section we can examine the inside of the inflammatory barrier, and then determine whether it were necessary to puncture it, or to drain it or not. I would have been pleased to have heard some of those who have had more experience with appendicitis than I have on that point. But there is a frequent class that has not been mentioned. I refer to cases of recurrent appendicitis in which the general practitioner who is attending the case is not to blame for not pointing it out to the specialist before the formation of pus, as in many

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cases pus will form within twenty-four hours. I have seen cases where a large quantity of pus formed within eighteen hours from the presentation of the symptoms. Of course, the history had shown recurrent attacks of the disease, but no evidence of pus, and long periods of time had elapsed between the previous attack and the one in which pus formation was noticed. In these cases very frequently there is no barrier between the abscess cavity and the peritoneal cavity, or the barrier is so slight that we can scarcely distinguish it. These are the cases in which the general practitioner has not the opportunity of calling the attention of the surgeon to it in time for early and safe operation.

DR. J. HENRY ÇARSTENS: I have in one or two cases in which I operated found that the abscess was post-peritoneal; the appendix had become adherent to the peritoneum behind the cæcum, had ruptured through the peritoneum into the cellular tissue back of the pelvis and gradually worked its way upwards toward the crest of the ilium. There you have a certain amount of tumor, and you cannot always tell whether it is the appendix, or the inflammatory exudate around it. You make the incision at the outer rectus, cut through the peritoneum, and find that the peritoneum has a space away down here. (Illustrating.) In the abdominal cavity the abscess is back of that and covered by peritoneum. I do not cut through there and open the abscess, but simply close it up. I make my incision outside of the peritoneum, cut through the muscle fibres and open it from the outside. That is the only kind of exploratory operation I have ever done.

DR. METCALF: Where the abscess cavity has been opened extra-peritoneally, and there is a suspicion that pus exists in the pelvic cavity, would you make the incision in the way you have indicated?

DR. CARSTENS: Yes. I would do that before the abscess was opened, because when the abscess is open your fingers are infected, and it is a risky thing to open the peritoneum afterwards.

DR. W. P. GAMBER: In one of the cases, when the abdomen was first opened a portion of the cavity was walled off

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from the general peritoneal cavity, but unfortunately I was not able to do the operation when I deemed it necessary. I had to wait until somebody else decided that it was necessary, and it was not encouraging for a successful operation. After my consultation I could not expect the family to consent to an operation after it had been decided that it was not necessary, and if the circumstances of the family would permit, even at that time, I might have agreed to perform the operation, but I could not do that and therefore had to wait. I will state in regard to recurrent appendicitis that there was no history in any of the cases of recurrent disease except in Case No. 3. About eighteen months previously in this case, in which there was general peritonitis with ulceration of the appendix, and recovery, there was an attack of appendicitis. The lady was eight months pregnant, and according to the history of operations done at that time for appendicitis they are unfavorable. The case was for about six days in the hands of another physician before it came under my notice, and the pain was very severe in the region of the appendix. The patient was delivered of a child, recovered, and there was no trouble until there was rupture of the appendix in the second attack.

The greatest trouble seems to be with us in country practice to get the agreement or consent to operate. If the physician decides to operate and his consultants fully agree with him, he can usually get the consent of both the patient and the members of his family, but otherwise he cannot in some cases.

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ACCIDENTS AND INCIDENTS OF ABDOMINAL SURGERY.

N. W. WEBBER, M. D.,
Detroit.

The experience of every operator in surgery, no matter how meager, has enough in it of interest when given to the profession to furnish pointers for emulation or avoidance.

The proverbial modesty of merit so obvious in the clerical and legal profession has never gained any considerable notoriety in the medical, and it is due to this blazonry of results that we stand where we do to-day, the foremost of the professions for practical good. Whatever is good is worth possessing, and while it is true that many a seed has died in the medical field for the want of proper light, we can truly say that a large and abundant harvest of grain with considerable chaff has been garnered for the future generations. In societies like this, personal experience and interchange of practical observations fill us full of thought and send us home like "giants refreshed with new wine."

In a service at St. Mary's Hospital exclusively devoted to the ailments of women, my field of practice for the past twenty years has been productive of some good, to me at least, and has been attended with some accidents that might possibly have been avoided, and given rise to some incidents pleasing on one hand and provoking on the other. One of the most pleasing incidents connected with my services in this hospital, equipped as it is with all the modern appliances for aseptic surgery, with sisters kind and attentive, trained nurses obedient and indefatigable, and a house staff of skilled physicians at hand night and day, is the fact that with operations

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nearly every week, and sometimes two or more, up to the present writing only one death has occurred in the last eighteen months.

While I have not run my operations up into the hundreds, nor have operated on hopeless cases, I have had several hysterectomies, abdominal and vaginal, for fibroids and cancers; a large number of laparotomies, to say nothing of innumerable operations for repair of the cervix and perineum. One of the incidents of actual practice which with my conservative predilections has been a source of great interest is the large number of oophorectomies that have drifted under my eye for relief of the pain that has continued unremitting after their mutilation. Not every case where ovaries have been removed has failed in securing relief of the troubles that led to the operation, but a large number that simply suffered pain most of the time, with exacerbations at the monthly period, the result of enlarged, sensitive and perhaps displaced ovaries, had a return of the old pain after an operation that they had either sought themselves or had urged on them. The woods are full of female emasculators, and the emasculated, innumerable in number, are walking detractors of misplaced surgical skill. Another incident was developed in a patient who was first seen in consultation outside the hospital for a phantom tumor. This enormous meteorism disappeared under an anæsthetic to reappear when from under its influence. It was the product of a nervous condition superinduced by pelvic inflammation, involving the tubes and ovaries in an exudate of considerable magnitude. In operating by abdominal section, one ovary was buried in a mass of exudate that rendered its removal extremely difficult, necessitating an actual gouging out of the organ from the center of the mass, thereby causing considerable hemorrhage. The other ovary was missing in the pelvis, and faithful search failed to reach it. My attention was directed to a swelling on the anterior wall of the abdomen near the margin of the incision, and on investigation the lost ovary was found buried in an exudate, and from this unusual position it was successfully removed and tied off. This same girl who suffered great distress most

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of the time, with exaggerated agony at the menstrual period, slowly passed into a stage of convalescence, with gradual diminution of her pain, until finally she left the hospital comparatively comfortable, so she was able to resume her avocation as a domestic. At the end of six months she returned suffering from metrorrhagia, profuse and almost constant. She suffered also from considerable pain in the pelvic region. I curetted the uterus thoroughly, removing some fungosities, and applied pure carbolic acid freely to the endometrium. She left again, gaining rapidly in flesh, to return once more flowing profusely. I used the curette again and again, with carbolic acid to the interior, with favorable results up to the present time. This and two other like cases where the pelvic inflammation and free exudation were the results of puerperal or septic sepsis gives weight to the opinion expressed by some that hysterectomy is the proper operation to perform under the circumstances. Some years ago I performed the extra-peritoneal operation of hysterectomy, clamping the stump, and for a long time this woman was troubled with a profuse hemorrhage which came and went with uncommendable regularity, finally stopping altogether. In the first case mentioned I am positive that I removed all the ovarian tissue; in the last, as reported, while the body of the uterus with its appendages were removed, the cervical canal was not cauterized simply because I did not know at the time it was necessary, and from the remaining mucous membrane the menstrual habit found expression. We know that ovulation is not necessary to menstruation, and we know also of the periodic subjective symptoms of menstruation occurring after oophorectomy and complete removal of the uterus.

In cases of extensive inflammation of the pelvic cavity, the mere removal of the ovaries and tubes does not remove at once the adhesions and exudates which obstruct the circulation and interfere with the innervation of the parts, so that with a portion of the mucous membrane remaining, receiving its blood supply from pathological surroundings, may we not expect to find expressions of hyperæmia, hypertrophy and hypernutrition in parts which formerly acted as an outlet for

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a physiological process? With blood channels leading to and from the uterus, hypernutrition of the lining membrane with fungus growths may be expected, especially in women where sexual intercourse adds its modicum of congestion to the already surcharged tissues. In the few cases of hemorrhage I have had occurring after oophorectomy, I have found that the enforced abstinence of sexual intercourse previous to and during convalescence after the operation has been followed with considerable ardor in this respect after health has been restored. Women have told me that they have enjoyed the sexual act performed as it has been without pain and so with a soliciting appetite on their part, and are spon sive action on the part of the man, congestion of the pelvic organs has been increased until it explodes in a profuse discharge of blood. Sentiment may object to the removal of an organ which primarily is not the objective point of the operation, but with possibilities in the background of its "going to the bad" is it not best to forestall them and complete at once all that may retard rapid recovery. In hysterectomy by the vaginal route the literature of the profession gives expression of variance of opinions as to the best methods of hæmostasis. Some prefer ligatures from start to finish, as lessening the danger of sepsis by closing up the peritoneal cavity and avoiding all risk of including the ureters, an accident which has occurred with the forceps. In tying off the broad ligaments, tubes and ovaries in the various operations I have performed, I have never mustered up courage enough to trust to the staying qualities of cat gut or kangaroo tendon, but have stuck to silk with a persistency worthy, perhaps, of a better cause. In two cases where I have used the ligatures I had a fistula remaining a long time, while with the forceps uninterrupted recovery with no untoward accident has been the rule. The peculiarities of the relations of the bladder to the uterus are somewhat bewildering in vaginal hysterectomies, and remind us that "women are fearfully and wonderfully made".

One case now convalescing in St. Mary's Hospital with an infravaginal cervix for which an operator could apparently

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offer a premium, projecting prominently as it did from the body, proved to be a delusion and a snare, for when I passed the sound into the bladder I found this organ attached to the neck in close proximinity to the necrotic, malignant tissue. If I had trusted to fair appearances I would have cut squarely into the bladder and not half tried. As it was I had considerable trouble to work my way between the "devil and the deep sea" to avoid diseased tissue below and the bladder above. The hypertrophy of the uterine neck, the result of hypernutrition of normal tissue, often adds to the difficulty of hysterectomy by the vaginal route.

In one case of a widow who had never borne a child at full term, the enlarged neck completely filled up the vagina, and I was compelled to feel my way, gouging into uterine tissue in front so as to avoid the bladder, until after partial liberation the smaller fundus was brought down and increased room gave me freedom to finish the operation. One circumstance in this case, which was simply a repetition of many others in my experience, was that she had solicited and received professional treatment from several medical gentlemen for profuse and long continued hemorrhage, and not one had investigated beyond this symptom to discover its cause. Not one had made a digital examination, simply contenting themselves with prescribing ergot and enjoining rest. One of my digits declared the nature of the trouble at once, and she went willingly to the hospital the next day to prepare for an immediate operation. A very short time more of such culpable neglect of the simplest diagnostic measures would have carried her beyond operative relief, burdening her with all the agony that death from cancer implies.

Ventral hernia after abdominal section is one of the disagreeable features of any considerable practice in this direction. While we all set our wits at work to improve upon the ingenious barriers to visceral escape devised by our predecessors, our success in the end lacks the element of self congratulation. Two black marks are registered against me during the past year in this respect, and while secondary operations restored the integrity of the parts, a feeling that

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something more might have been done in the first place marred the complacency attending the final results. Both of these cases occurred after the use of the drainage tube, made necessary by free oozing from torn up adhesions, and while some extenuation might be sought in the fact that one patient was persistently intractable to discipline, due to previous opium habit, I believe that could the drainage tube have been dispensed with the hernias would not have occured. In these, as in all others, I opposed a wide margin of peritoneum and closed it with a continuous suture of fine cat gut. I then introduce the deep sutures of silk worm gut, passing through all the tissues from the skin down to but not including the peritoneum, at intervals of an inch or less. The free ends I catch in forceps to wait for later tying down. I then return to cat gut and whip together by continuous suture the layers of facia, muscle, fat and skin, having a buried suture to the last, and finally I tie up the interrupted deep sutures of silk worm gut. Through the opposing margins of skin and tissues, separated by the drainage tube, I leave a loose suture, to be tied down when the tube is removed. Gauze, cotton and binders are then properly applied and the usual regimen carried out. The ideal operation of modern surgery is union by the first intention, and everything that prevents this consummation is looked upon with disgust. Drainage of wounds which, of course, nullifies this effort to perfection, has been subjected to all kinds of modifications so as to approach as near as possible to this desideratum. Were the details of every abdominal operation alike, skill in ingenuity would soon bridge over this gap of imperfection. We know, however, that pathological conditions unsuspected are opened up by the knife which render various modifications of this procedure necessary, and born of this necessity are fears of the exasperating sequelæ we have mentioned. The question of kinds of drainage appears to me like creeds in religion, one for individual option, best known by the operator and best appreciated under the conditions arising from the operation. While brilliant results have been obtained with lamp wick, skeins of silk, strips of cotton and other material

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noxious and germ breeding in their use; while rubber hose, glass tubes and other gaping objects have opened up highways into the peritoneal cavity through which legions of bacilli have passed to fail in their attempts against the success of certain operation, yet the percentage column of mortality has been wrong under such treatment, and better methods have been sought.

Why, with such utter contempt for means to prevent sepsis by the abdominal route, such strong objection should be urged against the vaginal route in drainage, because forsooth of the numerous colonies of bacilli that infect this canal, is a matter of great surprise. It is the old story over again of "straining at a gnat and swallowing a camel." Anything that will destroy gonococci will render innocuous every kind of bacilli, and as this is done it is perfectly safe to say the vagina can be rendered as antiseptic as the palm of your hand. It is not the quantity or the quality of the antiseptics that are thrown into the vagina that attains to this end, but rather the thoroughness of preparation that renders the germicide effective. While it is apparent that operations confined strictly to abdominal viscera, in abdominal or pelvic attachments of placenta, in ectopic gestation, in extensive capillary hemorrhage and other special cases may demand the Mikulicz or other forms of abdominal drains, it seems to me that habit or custom has so familiarized this route that it is kept up, when the shorter and better way to the vagina is overlooked. The recent exhaustive discussion on this subject by the Chicago experts of general and special surgery, as reported in the American Gynæcological and Obstetrical Journal, renders any extended remarks on this subject liable to suspicion of plagiarism, so completely has every phase of the question been gone over. I simply express a personal predilection for the vaginal route, in many of the cases that I formerly drained by the abdomen, as offering the advantages of gravity, and thereby more thoroughness of drainage, less danger of hernia, and less danger of infection of the abdominal wound and of the peritoneal cavity.

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DISCUSSION ON DR. WEBBER'S PAPER.

DR. J. HENRY CARSTENS: I do not think the paper of Dr. Webber ought to go by without some discussion, and still I regret it was not read yesterday, because a great deal of the ground which he has covered in his paper belonged to the subject which was discussed yesterday.

In the early part of the paper he calls our attention to the fact of patients not getting well after pelvic operations. We ought not, perhaps, to criticise the general practitioner too much, but he has considerable faith in the wonderful efficacy of removing the uterus, ovaries or tubes for the cure of nervous phenomena. We who have more experience become skeptical about it. We know that it does not always do it. We know that certain of these phenomena which occur at the menstrual period, and due to the monthly congestion of the pelvic organs, can be relieved by establishing the menopause. But a great many other nervous symptoms exist which have absolutely nothing to do with these organs—nervous diseases of various kinds. Patients expect too much from these operations, and the doctor makes a mistake in promising them too much. I have learned a good deal from experience. I do not promise so much now as I did at first. We have got to be a little careful.

Another point made by Dr. Webber was with reference to imperfect operations. These operations are sometimes very difficult. We cannot absolutely remove every particle of ovarian and tubal structure. The best and most skillful operators cannot do it sometimes unless they endanger the life of their patient. If the surgeon has got to remove a diseased pus tube on one side and an ovary on one side, he is obliged to hurry the operation and to leave a part of a tube and part of an ovary. Now, if a skilled man does this you can imagine what a bungling operator will do. The result is that there is further trouble, because part of the ovarian stroma which continues to ovulate every month remains, and

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the symptoms of menorrhagia and so on are not removed. I have seen quite a number of cases in which I had to do a secondary operation, removing the remnant of ovary which was left and taking out, in some instances, even the uterus. I have found out that the patients upon whom I first operated were not cured, and that I had to operate on them again and take out the uterus. I have had to perform three or four operations before a cure was finally effected. So I have gradually, unconsciously, and against my will been departing from the idea of removing the ovaries and tubes, or parts of them, and have come more and more to the idea that in this kind of work the best thing to do is to make an absolutely radical operation and remove the uterus, ovaries, tubes and everything perfectly clean, and then you establish at once the menopause, and you will find that you have a great deal better results. The patients will not have the ailments of which Dr. Webber spoke in his paper. As I said yesterday, much depends upon the age of the woman and the condition of the uterus. If she is old, has a lacerated uterus, a degenerated, absolutely useless mucous membrane, I do not hesitate to remove the uterus, tubes and ovaries. If it is a young woman, married or unmarried, and has no children, I perform abdominal section and try to save part of an ovary and tube so as not to rob her of the chances of becoming a mother.

DR. W. F. METCALF: There is one feature of the discussion brought out by Dr. Carstens which might be emphasized, and that is in connection with the removal of all the pelvic organs for the dissipation of peculiar and various reflex symptoms. I think that is in many cases not sufficient. The same sympathetic nerve ganglia which supply or control the circulation in the organs of generation control the blood vessels in the rectum, in the clitoris. The nerve supply of the clitoris is far greater than that which supplies the glans penis, and we all know the reflex troubles which arise from adherent prepuce and decomposition of smegma beneath it. The same conditions are found in the female underlying the hood of the clitoris, and in many of these cases it will be necessary to

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separate these adhesions, and to remove the hood of the clitoris in order to prevent future adhesion and the re-accumulation of smegma. Where this and the other work has been done and the reflex trouble continues, or diminished peristalsis, causing continued meteorism, or various symptoms attributable to irritation of the spine because the connection of the hypogastric plexus with the nerve centers in the lumbar region is intimate, and I have seen through the same medium cases of hemicrania and other cerebral symptoms develop, also various mental phenomena, so that failing, after we remove all that we can see is pathological in the pelvis, it is our duty at the same time, the condition of the patient permitting, to make a thorough examination of the rectum. This being done, we should still go further and examine the sigmoid flexure of the colon, because where irritation of these parts has existed for some time we find a tight sphincter at the sigmoid flexure and an accumulation of mucus above it; it is usually an easy matter to rid the colon of this by dilatation and thorough douching.

The paper of Dr. Webber covers so much of the field which was gone over yesterday so thoroughly that I feel to take up various points would be unnecessarily prolonging this discussion.

DR. N. W. WEBBER: There is not much to discuss in closing. There have been no criticisms that require to be answered at this time. What the chairman of the section has said simply emphasizes what has already been said, that a thorough knowledge of diagnosis is necessary to arrive at a satisfactory conclusion, and a person has got to be a general practitioner before he can become a specialist. He has got to understand the causes of various reflexes and trace them from cause to effect. To do this it is necessary for the practitioner to have a thorough knowledge of anatomy, and he should have been a successful practitioner of general medicine in the first place. We always contend that to be a specialist in any department of medicine or surgery one should be prepared for special work by the knowledge that he has gained in general practice.

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NON-SURGICAL TREATMENT OF THE PELVIC DISORDERS OF WOMEN.

J. H. KELLOGG, M. D.,
Battle Creek.

The great advances which have been made in recent times in surgical technique, and especially the great decrease in risk from surgical procedures secured by asepsis, has led to a very great extension in the domain of surgery, and especially that department of surgery which relates to the diseases of women. Gynæcological operations which a few years ago were considered too hazardous to be undertaken by any except a few bold and experienced operators, and only in cases in which loss of life or total disability would be prevented by no other means, are now undertaken by almost every surgeon and by gynæcologists of little or no experience, and in cases in which a dozen years ago no reputable surgeon would have dared to advise an operation of so grave a character. Not only ovariotomy, but hysterectomy are now performed by some surgeons with even less consideration than surgeons formerly gave to the matter of the removal of a toe or the tapping of a dropsical abdomen; while such operations as the repair of a torn cervix or a lacerated perineum have come to be regarded as minor operations, requiring scarcely more thought than the removal of a corn or an in-growing toe nail. It is the opinion of the writer that a vast amount of unnecessary gynæcological surgery is being done at the present time; not dishonestly or even carelessly, perhaps, but because operation is easy, more often brilliant in its results, and has come to be something of a fad. The modern gynæcologist is necessarily a surgeon, and a surgical training

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naturally tends to create a dislike for the slow and tedious methods of non-surgical treatment, while the physician's increasing skill gives him not only an increased aptitude for surgical measures, but an increased disposition to apply the surgical method whenever possible or allowable. His dexterity with scissors and needle renders it almost an actual distress to him to allow a perineal tear or a cervix laceration, even though very small in extent, to escape the surgical attention, without taking into consideration the bearing which the slight injury may have upon the health or comfort of the patient.

I am not disposed to be cynical nor to criticise in an unfriendly way any medical brother, but the immense strides made by gynæcological surgery in recent times have overshadowed non-surgical methods, and there appears to be a real necessity for greater attention to the development of non-surgical therapeutics in gynæcology, and for a revision of some of the views which have heretofore been maintained respecting the bearing of slight injuries of the pelvic structures to various other and remote pathological conditions.

Many experienced gynæcologists have become skeptical respecting the awful consequences which have been so graphically pictured as likely to result from a small cicatrix in a cervix or a perineum. For myself I must confess that I have never yet seen any serious reflex phenomena resulting from such a condition, and do not see any good reason why such a cyclone of reflex effects as has been pictured to us should arise from a scar in the cervix or perineum more than from a scar on the palm of the hand or the tip of the tongue. I am glad, at least, to say that more than a dozen years ago I ceased to operate on the cervix or the perineum simply for the removal of scars; in fact, I am glad to say that I never did much of that kind of surgery.

I think, also, that I am correct in believing that quite a large portion of observing gynæcologists are coming to attach far less importance to small lacerations of the perineum as factors in the production of uterine prolapse. Personally I do not remember ever having seen a case in which I felt con-

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fident that a retroversion was due to laceration of the perineum. And I am certain that I have never seen a case in which a repair of a lacerated perineum has resulted in a cure of a retroversion or seriously prolapsed uterus, excepting in case of procedentia, and then the relief has usually been but temporary, a more thorough-going operation being required. Indeed, I have frequently been struck by the fact that the uterus and ovaries, and other pelvic viscera, were all in perfect position, notwithstanding the patient under examination was found to be suffering from a slight laceration of the perineum.

It has always appeared to me very remarkable that if the perineum plays so absolute a role in the support of the pelvic viscera as has been supposed, we should so often find cases of complete procedentia without any serious laceration of the perineum. I have seen a good many cases of complete laceration of the perineum and yet, strange as it may appear, I have not in a single one of these cases found procedentia, nor any condition even approaching complete prolapse. I am convinced that we have had exaggerated views upon some of these questions, and it appears to me that we have been working at the wrong end of the problem. The careful study which I have given this subject during the last dozen years has firmly established me in the opinion that displacements of the uterus and ovaries rarely, if ever, depend upon weakness or deficiency of the perineum. But I have undertaken to show in various papers published in the last eight years that:

1. Displacement of the pelvic viscera is not, as a rule, an isolated pathological condition, but is associated with similar static disturbances of the viscera of the abdominal cavity.

2. The principal causes of uterine and ovarian displacements are such as effect the static relations of the viscera of the abdomen as well as those of the pelvis; and hence the rational treatment of pelvic displacements requires the removal of all causes of displacement of the abdominal as well as of the pelvic viscera, and the restoration of the normal support of these organs.

A careful analysis of the symptoms presented in several

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thousand cases of women presenting distinct evidences of pelvic diseases has convinced me that a large share of the nervous and other functional disorders from which these patients suffer are due, not so much to the pelvic disorders themselves, especially in cases of displacement of the pelvic viscera, as to the condition of general visceral prolapse involving nearly all the organs of the lower half of the trunk.

Most women suffering from pelvic diseases complain of pain when on the feet, dragging pain in the bowels and the lower part of the back, pain at the extreme lower end of the spine, soreness and pain in the region of the navel, a feeling of lack of support in the lower abdomen, a sensation commonly described as goneness at the pit of the stomach, weakness of the lower limbs, pain in the back, crawling, tingling, numbness, stinging and other sensations in the legs, cold hands and feet, burning of the soles and palms. Sometimes the patient says she is only comfortable, when on her feet, when holding up the bowels with the hands. Such patients tenaciously cling to the corset, because they evidently need some support. These patients also often complain that when they undertake to stand without a corset there is such a sinking at the stomach that they are compelled to sit down. The evident cause is the dragging of the prolapsed bowels and stomach, occasioned by the relaxation of the abdominal muscles by which the branches of the pneumogastric and sympathetic nerves are put under an unnatural strain. It is evident that in these cases a large part of the symptoms are due, not to the pelvic disorder, but to the general disease of which this is a part.

If we expect to cure a woman who is a chronic sufferer from pelvic disorders, we must treat the patient rather than the malady. This is a principal which applies, in fact, to most chronic disorders ; and a failure to recognize this principle is the rock upon which professional effort often splits. It is as hopeless to undertake to cure such maladies by the usual routine methods, which are addressed to local symptoms and conditions only, as to expect to kill a noxious weed by picking off its flowers or a few of its leaves. The whole disease

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must be eradicated root and branch. This can only be accomplished by the removal of the morbid conditions which are the real cause of the multitudinous symptoms by which the disorder is recognized and for which it is often named. Rational treatment of this class of diseases must, then, include, first of all, the adoption of a proper dress which will be one in which every muscle of the trunk will have perfect freedom to act. The patient must be instructed to have her dress measure taken with the waist fully expanded, and to allow an inch or two for growth, in the hope that to some degree she may overcome the deformed condition which she has induced by ignorant obedience to fashion, rather than to the laws of physiology and the dictates of common sense.

Shoulder braces and harnesses of every description are, on the whole, a snare and a delusion. The only correct principle is to suspend everything from the shoulders by means of a waist which will equally distribute the weight upon natural bearings, and at the same time give latitude for the greatest freedom of waist movement.

If all women would at once adopt a healthful mode of dress, probably half of our profession would be obliged to seek some other calling. Certainly, at the present time, more than half our business consists in efforts to repair damages which ignorant women have inflicted upon themselves. Neither a proper knowledge of the requirements of the body, nor a just consideration of the principles of beauty, justifies the popular mode of dress. The idea that a small waist or a round waist is beautiful is a mischievous and dangerous notion which ought to be eradicated from the public mind.

For twenty years I have made constant use of gymnastics in the treatment of this class of disorders. On beginning a course of exercises, the first thing requisite on the part of the patient is a suitable dress. The ordinary fashionable dress is absolutely unfit for this purpose. Indeed, it is dangerous for a woman to undertake a gymnastic exercise or any considerable degree of exercise of any sort in a dress which constricts the waist. When the abdominal organs are forced down by waist constrictions, any exercise which brings into

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powerful action the diaphragm or abdominal muscles has the effect to force the depressed organs still further downward, and thus the mischief produced by improper dress is greatly aggravated. No constriction about the waist whatever should be allowed. Even a gymnastic dress is sometimes made harmful by the tightness of the bands. My instruction to ladies for the fitting of a dress at the waist is to have the measurements taken during a deep abdominal inspiration, and then add two or three inches so as to allow room for development.

At first the exercise employed must be very light, barely enough to produce gentle fatigue. Some soreness of the muscles will always be experienced if the amount of exercise taken is sufficient to accomplish any good.

The exercises which I have employed are, in general, light calisthenics consisting of free hand and body movements, and the use of wooden dumb-bells, Indian clubs, wands, chest weights, and various gymnasium apparatus for bringing into play special groups of muscles of the arms, trunk and limbs; walking exercises, breathing exercises, Swedish gymnastics and Delsarte. I employ exercises with iron dumb-bells of light weight, and light exercises with a trapeze, swinging rings and horizontal bars, in suitable cases. The weight of bells and clubs and the exact measure of weight to be used in exercise with chest weights or other apparatus are indicated for each patient, as well as the time or number of strokes in the employment of rowing machines and similar apparatus. The employment of various apparatus and different forms of exercise is important, as it not only encourages patients to take a larger amount of exercise than they otherwise would do, but enables them to do so without injury by bringing into play different groups of muscles or different combinations of muscular groups, and so preventing fatigue before a full dose of exercise has been taken.

The purpose of the general exercise referred to is to improve the muscular condition of the patient in general. Special attention is, of course, given in the adjustment of exercises for the patient, to the development of especially

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weak points; but in addition to the exercises named, a large number of special exercises are employed which have particular reference to the development of the muscles of the trunk which are always found disproportionately weak in a woman who has been accustomed to wear the ordinary form of dress.

For this purpose I find particularly valuable such exercise as lying upon the back and raising the leg from horizontal to perpendicular in alternation. Fixing the legs and resting the body supported upon an incline adjusted at an angle suited to the patient is another special exercise of value. Resting in a horizontal position, face downward, sustaining the weight upon the elbows and toes with the body held rigid and free from the supporting surface is an excellent exercise to develop the muscles of the back and abdomen. This exercise may be varied by alternately raising and lowering the body, resting a few seconds in each position. Drawing the body up in a prone position to an angle of forty-five degrees by means of the toes catching the rounds of the ladder is an exercise of great value for patients who are able to take it. It not only strengthens the muscles of the trunk, but at the same time empties the portal veins. A breathing exercise which I have found of great value is the following: Placing herself in the genu-pectoral position the patient takes a deep abdominal breath, then expels the breath by contracting the abdominal muscles forcibly, at the same time drawing up as strongly as possible the muscles of the pelvic floor. By this means the round ligaments, as well as the abdominal and perineal muscles, are vigorously exercised.

The passive and active-passive exercises of the Ling system of manual Swedish movements are also of great value in these cases, as I can testify after having employed this system for nearly sixteen years. I visited Stockholm for the purpose of placing myself under the tuition of Prof. Hartelius, the head of the government school there, in order that I might qecome practically familiar with the Swedish movements and Swedish gymnastics. I consider these systems of active and passive exercise indispensable in the management of these cases. My patients are daily exercised, in classes, by a per-

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son trained for the purpose; and I am sure there is nothing I prescribe or do for them which are more appreciated than are these exercises. Of great value also are the manipulation of the bowels, especially directed to the restoration of prolapsed viscera to their normal position.

By massage the dilated and atonic stomach and the impacted and obstructed bowels may be assisted to get rid of their contents. The circulation is accelerated, prolapsed bowels, kidneys, liver and spleen may be restored to position, and thus, by making room above, the prolapsed organs of the pelvis are encouraged to resume their normal position. I have constantly seen most excellent results from the employment of abdominal and pelvic massage in conjunction with general and special gymnastic exercises and various forms of active and active-passive Swedish movements. For example, I have frequently seen the aggregate strength of arms, legs, trunk and the respiratory organs increased by three months' exercise more than two hundred per cent., and I have many cases on record showing an increase of more than four hundred per cent. In one instance the percentage of increase was nearly five hundred.

It is, of course, essential in carrying out a system of treatment of this kind that one should have at command thoroughly-trained assistants, who can execute, or assist the patient to execute a prescription for exercise as accurately as an experienced pharmacist can prepare a medical prescription. I am sure, however, as must be conceded by any one who has given the matter careful thought, or at least by one who has observed the result of methodical treatment of this sort, that a rational treatment of pelvic diseases in women must include systematic exercises such as those which have been briefly outlined. By means of such exercises the abdominal muscles are strengthened so that they may be able to hold the abdominal viscera in their proper place. The weakened respiratory muscles are developed and the artificial mode of breathing corrected so that the respiratory process renders to the abdominal and the pelvic circulation the natural and needed assistance, thus relieving pelvic congestions. I

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have often been astonished at the rapidity with which pelvic congestions, ovarian and uterine irritability and hyperesthesias, and cervical and vaginal catarrhs disappear under the influence of normal respiration and increased strength of the abdominal muscles. General nervous irritability, spinal hyperesthesia, and the general debility quickly yield in the majority of cases to a judicious system of exercise combined with other rational measures, although previously refractory to the most carefully prepared medical prescriptions, rest cure and various plans of management.

It is, of course, necessary to select carefully cases to be subjected to this kind of treatment, and to begin the treatment in a most judicious manner. Cases of pyosalpinx, or active ovaritis, or salpingo-ovaritis, or any condition of the pelvic organs in which there is an active inflammatory process going on, as indicated by local pain, heat, tenderness, throbbing and a general rise of temperature are, of course, not fit subjects for treatment by exercise.

The value of hydro-therapeutics, at least in the form of the vaginal douche, is now well understood by the profession, although I fear not as thoroughly utilized as it ought to be. But there are other measures of treatment the value of which are fully as great as that of the vaginal douche, especially the sitz bath, the wet girdle or umschlag of the Germans, and the cool spray or shower bath. The sedative effect of the sitz bath, and the powerful tonic effect of cool applications to the surface of the body, are of the highest value in the treatment of the disorders from which women suffer.

Abdominal massage is almost indispensible in the treatment of these cases. The purposes of abdominal massage in cases of this sort are:

1. To relieve the strain upon the abdominal sympathetic by replacement of the bowels, stomach and other displaced viscera.

2. To relieve the obstinate constipation which exists in a large proportion of these cases, and which contributes materially to the toxæmia which is the existing cause of the attacks.

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3. To aid stomach, intestinal and liver digestion.

The procedures employed by the writer in abdominal massage are the following:

"1. Preliminary movements—deep breathing, inspiratory lifting, lifting the abdominal contents.

"2. Reflex stroking.

"3. Nerve compression.

"4. Vibration—deep vibration, lateral shaking, circular shaking.

"5. Percussion — tapping, spatting, hacking, beating, clapping.

"6. Deep kneading—digital kneading of the colon; kneading of the colon with the fist; kneading of the colon with the fingers and heel of the hand; kneading of the colon with the thumb.

"7. Mass kneading of the abdominal contents.

"8. Rolling.

"9. Fulling (carefully).

"10. Petrissage, or muscle kneading.

"11. Stroking.

"12. Percussion of lumbar spine and sacrum.

"13. Hips-raising and the knees-separating exercises."

Pelvic massage is also of unquestioned value in the treatment of a large variety of pelvic disorders, although it has little value unless employed in connection with abdominal massage, and of no permanent efficiency unless supplemented by such exercise as will strengthen the abdominal muscles and the muscles of the trunk in general.

* The following is a brief outline of the method which I pursue in pelvic massage, which I have described more at length in my work on Massage.

Pelvic massage concerns the following organs:

1. The uterus.

2. The uterine appendages—ovaries, fallopian tubes, broad, round and other ligaments.

3. The vagina, in cases of rectocele and cystocele.

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* "Art of Massage" by J. H. Kellogg, M. D., Modern Medicine Publishing Co., Battle Creek, Mich.

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4. The rectum, in cases of prolapsed and relaxed rectum.

5. The prostate in man; sometimes, also, the bladder, in cases in which it is atonic.

6. The coccyx, in cases of coccygodynia, in both sexes.

POSITION.—The patient lies upon the back, with the heels well drawn up, the knees separated, the hip slightly elevated, arms by the side, and the head (not the shoulders) supported by a thin pillow.

1. PRELIMINARY PROCEDURES.—The manipulation practiced in pelvic massage are rendered very much more efficient by the application of a few preliminary movements for the purpose of placing the abdominal and pelvic contents in the most favorable condition possible in any given case. It should be remembered that in pelvic displacements there will always be found, also, displacement of the abdominal contents.

The preliminary movements which I have found the most effective, are: (1) Deep breathing; (2) Lifting abdominal contents; (3) Inspiratory lifting.

(1) BREATHING MOVEMENTS.—The patient is made to execute a few full breaths in which the lower part of the chest and abdomen are well expanded with inspiration and drawn in as far as possible with expiration.

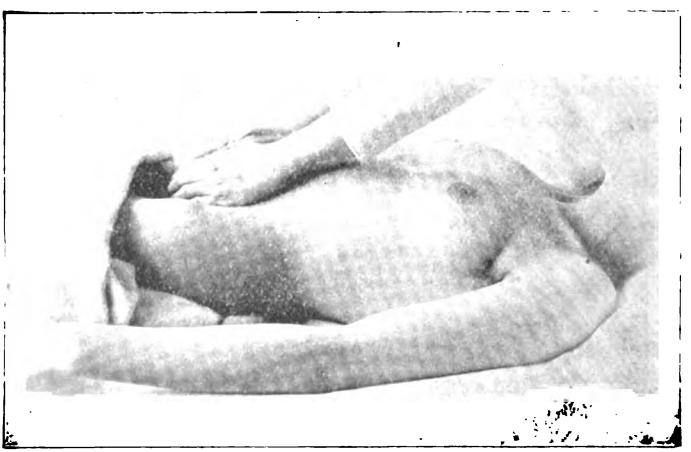

Fig. 1. Lifting Viscera.

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(2) LIFTING OF THE VISCERA (FIG. 1.)—After the patient has taken three or four deep breaths, the physician stands at the patient's left, and with his back to the patient places the ulnar edge of the two hands, with the fingers extended, just over Poupart's ligament and parallel with the ligament, the fingers pointing toward the pubes. From this position the hands are moved slightly upwards, the edge of the hands being made to sink as deep into the abdomen as possible without severe pain, the arms being slightly rotated at the same time, and the hands drawn upwards in such a way as to grasp the contents of the abdomen and drag them upwards. This movement is repeatedly executed during the act of inspiration, the patient continuing to take deep and full breaths, expanding the lower chest and abdomen as previously described. See that all displaced viscera are in perfect position.

Essentially the same movement may be executed with the patient in the knee chest position. The masseur stands with his back to the patient's head and reaching around the patient with one arm drags the bowels upwards during inspiration.

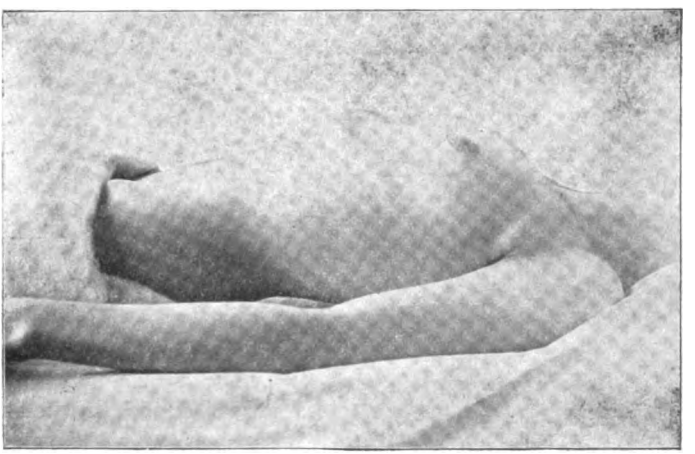

Fig. 2. Inspiratory Lifting of Abdominal Contents.

(3). INSPIRATORY LIFTING (Fig. 2).—A number of years ago, when engaged in a series of experimental studies on intra-abdominal pressure, and while one day administering pelvic

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massage to a patient in whom the uterine supports were greatly relaxed, I observed that with each forcible inhalation the uterus was lifted upwards a distance of one half inch or more. I noticed also that the patient was breathing almost wholly with the upper chest. In order to intensify the effect of the inspiratory lifting, I caused the patient to exhale completely, and then to make the movement of inspiration by lifting the upper chest forcibly while keeping the glottis closed, so that the air could not enter the lungs. The effect of this procedure was very remarkable, the uterus being lifted in an upward direction more than an inch.

2. INTERMITTENT COMPRESSION OF THE UTERUS.—The preliminary movements being completed, one, or, when possible, two fingers (index and middle fingers) of the left hand are introduced into the vagina and crowded upward behind the cervix, the uterus being first placed in perfect position, then lifted upwards and forward as far as possible without giving too much pain. The extended fingers of the right hand are at the same time pressed upon the abdominal wall just above the pubes, so as to impinge upon the fundus, covering as large an area of the uterus as possible. Firm, intermittent pressure is then made, continuing for two or three seconds, with intervals of one or two seconds, this being repeated six to twelve times. In this procedure the pressure of the external hand will fall chiefly upon the top of the fundus.

When the vaginal orifice is too small to admit of two fingers, a useful application of massage may be made by the aid of one finger introduced into the vagina, or even a single finger operating through the rectum.

3. DIGITAL KNEADING OF THE UTERUS.—The fingers of the left hand being returned to the first position behind the cervix, thus supporting the organ, the fingers of the right hand execute a circular digital kneading movement, beginning at the top of the fundus and enlarging the circle until the fingers are made to press down the sides of the uterus and all about it. A slight change in the direction of the pressure made by the fingers of the left hand enables them to antagonize constantly the movements of the right hand so that the

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uterus may be by this means very thoroughly manipulated in nearly all cases, and except in patients who are very fleshy. This procedure is continued from one to five minutes.

4. LIFTING MOVEMENTS.—The preceding manipulations will have completely freed the uterus from the overlying intestines so that the top of the fundus will be lying in immediate contact with the peritoneal surface of the anterior wall of the abdomen. By the combined action of the internal and external hands the uterus can now be freely lifted forward so that its form may be clearly outlined by the fingers of the right hand. The action should be intermittent.

5. VIBRATION OF THE UTERUS.—While supporting the organ with the fingers of the left hand behind the cervix, the thumb or one or more fingers of the right hand is applied to the top of the uterus, and fine vibratory movements are communicated to it. This is a powerful means of stimulating the uterine circulation.

6. DIGITAL KNEADING OF THE APPENDAGES.—In pelvic massage the manipulation should not be confined to the uterus alone. The ovaries, tubes and the broad and round ligaments may be massaged thus: After lifting the uterus well forward, freeing it from the overlaying intestines, the fingers of the left hand are directed toward an ovary. Starting as low down as possible, firm pressure is made in an upward direction, while the fingers of the external hand are made to cooperate in an effort to grasp beneath the ovary and tube and lift them forward. At the same time gentle digital kneading movements are executed, the pressure of the external (right) hand being directed towards the fingers placed internally.

7. DIGITAL KNEADING OF THE ROUND LIGAMENTS.—The fingers in the vagina should be directed toward the inguinal canal while digital massage is executed by the fingers of the right hand traveling in a curved line from the external ring along the side of Poupart's ligament and toward the fundus. The internal fingers will, to some extent, follow the movements of the right hand so as to compress the tissues between the fingers of the two hands.

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8. STRETCHING OF ADHESIONS AND KNEADING OF EXUDATES.—When adhesions and exudates are present, firm pressure should be made directly upon the bands of adhesion or the masses of exudate with the tips of the fingers which operate internally, counter-pressure being made externally; and, as far as possible, the morbid parts should be grasped between the fingers of the two hands, and thus subjected to digital massage. Adhesions are also stretched by the lifting movements of the uterus previously described.

9. NERVE COMPRESSION.—The sacral plexus of the spinal nerves and several of the lowermost pairs of ganglia of the sympathetic are accessible to digital pressure through the vagina; and in appropriate cases these, as well as other nerve structures, may be stimulated by gentle compression in connection with other procedures. One of the largest nerve masses accessible to compression through the vagina is the hypogastric plexus, which is located on the anterior surface of the sacrum, just below the promontory. A row of four or five sympathetic ganglia lies on either side of the medial line just over the junction of the sacrum and ilium, the anterior aspect of the sacro-iliac synchondrosis. A single ganglion (coccygeal ganglion, or ganglion impar) lies in front of the coccyx. Pressure made upon these points stimulate the ganglia and their branches and by this means excites the circulation in the pelvic vessels.

10. MASSAGE OF THE ABDOMINAL MUSCLES.—After the internal manipulation, the muscles of the lower abdomen and inner thighs should be gently masseed. The procedures most useful are the following, employed in the order named: Tapping, hacking, spatting, centripetal friction, and finally, stroking.

11. FINISHING MOVEMENTS.—

(1) Knee separating, breathing. The patient should inspire while separating the knees, and expire while closing them. The vigor of the exercise may be increased by making a slight resistance to the movements of both adduction and abduction. The movements should be made at the rate of ten or twelve per minute.

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(2) Hips raising, breathing in as the hips rise, and breathing out as they sink. This movement should be repeated from four to eight times. The movements of knees separating, hips raising, and breathing may be executed simultaneously.

(3). The treatment should be concluded by having the patient turn upon the face and administering percussion—tapping, hacking, spatting, beating, and clapping over the sacrum and fleshy portions of the hips.

The following points should be carefully observed in the administration of pelvic massage:

1. Never administer pelvic massage to erotic patients, nor in cases of vaginismus, acute pyosalpinx, pelvic abscess, growing tumors of the uterus or ovaries, rectal ulcer, acute vaginitis, irritable urethra, or inflammation of the Skene's glands until after these conditions have been removed. The best results are obtained in cases of subinvolution of the uterus, relaxed ligaments, recent exudates, and passive congestions with little sensitiveness. Kesch recommends that uterine massage should be applied especially during menstruation, but does not give what seems to the writer to be valid reasons for the recommendation. My opinion is very positive that massage should be discontinued during this period.

2. Before treatment have the patient thoroughly empty the bladder and bowels, employing an enema, if necessary, or a coloclyster (large enema in right Sims's or in knee chest position.) A hot vaginal douche should also be administered.

3. No movements should be made with the hand used internally except with the ends of the fingers.

4. The force employed should generally be sufficient to produce slight pain.

5. In cases of flexion, the flexion should, if possible, be straightened during the manipulation. In all cases of displacement the uterus must be restored to its proper position.

6. Care must be taken to have the patient breathe deeply and regularly during treatment.

Much more might be said respecting the non-surgical treatment of diseases of women, and I might give a long list of

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cases illustrative of the value of the measures outlined; I will only say, however, in conclusion, that I know of no class of ailments in which rational non-surgical measures yield such brilliant results as in the treatment of this class of disorders. A few months' careful treatment and training suffices, in many cases, to restore a patient from a condition of apparent hopeless invalidism to one of robust health and active usefulness.

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MICHIGAN STATE MEDICAL SOCIETY.

SECRETARY'S MINUTES

OF THE

THIRTY-FIRST ANNUAL MEETING HELD AT MT. CLEMENS, JUNE 4TH AND 5TH, 1896.

FIRST DAY—GENERAL SESSION.

THURSDAY, JUNE 4TH.

The society convened in the Presbyterian church on New street, and in the absence of the president, Dr. Victor C. Vaughan, of Ann Arbor, the meeting was called to order by the first vice-president, Dr. Hugh McColl, of Lapeer, at 9:30 A. M.

The Rev. R. G. W. Webb, of Mt. Clemens, invoked divine blessing.

THE VICE-PRESIDENT: I regret to announce that our president is detained in New York on some business in the courts. We will now listen to an address of welcome by Mr. T. M. Crocker, of Mt. Clemens.

Mr. Crocker then delivered the following address of welcome:

Mr. President and Gentlemen:

On the part of the medical profession of this county and the citizens generally it is with diffidence but with pleasure that I bid you welcome to the city of Mt. Clemens.

The physicians of this city and of the county at large have ever had a just professional pride, and they now with great pleasure greet their friends and brothers throughout the state to this meeting, trusting that matters of general interest to

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the profession may be discussed, and an interchange of views had from which the participants will be benefitted.

All well informed people realize that everything which tends to benefit medical practice, by giving the practitioner new thoughts and enlarging the number of his remedies, is to them a blessing, as it tends to mitigate pain, relieve suffering, and prolong life.

For the past twenty-five years your profession has made comparatively greater progress than any other of the learned professions.

In whatever field of learning new thoughts have been suggested or facts discovered, you have been quick to seize upon and turn them to good account.

No matter by whom exactness has been reached or the domain of thought has been extended, the members of your profession have quickly garnered from the field such facts and principals as could aid them in their useful labors for the benefit of mankind.

This is not said as empty flattery but as a just tribute to your true learning, and the expression of a due appreciation of your great service to your fellow men.

With that earnest desire which pervades the great body of your profession to excell in skill as surgeons and correct practice as physicians it is wholly unnecessary for me to urge you on to greater exertions, but I will bid you God speed in the good work you have so greatly expanded. Never grow weary; never falter.

Before closing my remarks I will call your attention to the baths which have made our fair city famous throughout the civilized world.

In justice to yourselves and to your many patients at home you should learn fully of the wide scope of the ills that flesh is heir to which are reached by the healing waters here in use.

As men of investigation and of thought, give them the consideration their many cures merit at your hands.

For your profession I have a profound respect, as I believe your best efforts are devoted to the use and benefit of our race.

Hoping you will here have not only a pleasant but a profit-

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able meeting, wherein you freely inform each other of new thoughts had, benefits reached or remedies acquired, I again bid you welcome.

The vice president then called for the report of the executive committee, and Dr. A. N. Shotwell, chairman, made the following report:

Mr. President and Gentlemen:

This committee appointed by the Michigan State Medical Society, in looking for a suitable place for this society, thought first to rent the opera house, and was also tendered the use of the county buildings; but it was found that this church could be had for a nominal price, and that with the tender of the Mt. Clemens Club it was thought best to take this for the general session and hold all sections except medicine there; and there has been enough collected from rentals for advertising and the Egnew and Sherman Hotels to pay all accounts at this place, including buttons and printing.

There will be a boat ride this afternoon given to the visiting ladies by Mrs. A. N. Shotwell and Mrs. H. F. Taylor on the Mineral City to St. Clair flats, starting from foot of Macomb street at 1:15 P. M., and Avery dock at 1:30 P. M., city time.

The annual report of the secretary was called for, and read as follows:

Mr. President and Members of the Michigan State Medical Society:

In submitting this my annual report for the past year I wish to extend thanks to my predecessor, Dr. Chas. W. Hitchcock, for the prompt and courteous manner in which he has invariably responded to my calls for assistance during the year. His intimate acquaintance with the affairs of the society has rendered his advice of great assistance to me in my first year's conduct of the office of secretary.

A matter of considerable importance to the society will soon come before you for discussion. Four years ago the transactions of this society contained 464 pages, and its members numbered 542. Last year the transactions contained

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620 pages, a gain of 156 pages, while the membership dropped to 519. This year there are fifty members who are three years in arrears for dues, and whose names will therefore be dropped from the roll, while the average number of new members for the past four years has been but forty. It is therefore to be feared that our membership this year will be some less than last. It is to be hoped that the report of the committee on ways and means to increase the membership of this society will meet with earnest consideration.

It is pleasing, however, to be able to call your attention to the fact that from a literary and scientific point of view the society is in a most flourishing condition. You will notice that the program this year contains eighty-three papers, almost double the number of last year; and a casual glance at the subjects and contributors warrants the belief that this meeting will not fall below its predecessors in true scientific merit. This is due, I think, in a large degree to the earnest labors of the program committee and the officers of the sections, to whom the thanks of the society are due.

Through an oversight no program committee was appointed at the last annual meeting, but at the suggestion of the secretary one was designated later by the president. The advantage of such a committee must now be apparent to us all, and I wish to recommend that our by-laws be so amended as to include a program committee among the standing committees of this society.

The following gentlemen received credentials as delegates from this society to the American Medical Society:

J. R. DODGE, Hudson.
W. E. BURTLESS, St. Clair.
H. O. WALKER, Detroit.
H. D. THOMASON, Albion.
C. H. BAKER, Bay City.
LEARTUS CONNOR, Detroit.
E. S. PETTYJOHN, Alma.
C. B. BURR, Flint.
D. McLEAY, Prairieville.

In accordance with article IV, section 3, of our by-laws, I am compelled to report the following members as *two years in arrears for dues:*

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Alden, C. W., Saginaw.
Babcock, E. B., Kalkaska.
Bigelow, C. P., Big Rapids.
Bloch, S., Muskegon.
Bryan, A., Detroit.
Clement, A. B , Muskegon.
Dakin, D. S., Detroit.
Dobson, J. M., Muskegon.
Dowse, Louisa, Petoskey.
Eldred, J. N., Chesaning.
Ferguson, J. E., Belding.
Fries, C. S., Muskegon.
Huizinga, T. G., Zeeland.
Hyde, C. C., Addison.
Locy, L. J., Davison.
McCrea, H., Marlette.
Manly, A. C., Leslie.
Pratt, Foster, Kalamazoo.
Raynale, C. M., Birmingham.
Rockwell, A. H., Kalamazoo.
Root, Don A., Ann Arbor.
Smart, W. N., Muskegon.
Smith, H. E., Detroit.
Strong, E. B., Byron Center.
Strong, H. W., Byron Center.
Warren, W., Flint.
Weaver, F. A., Charlotte.
Wessinger, J. A., Ann Arbor.
White, C. H., Grand Rapids.
White, M. P., Dowagiac.
Williams, O. C., Muskegon.
Willson, J. C., Flint.

I have also to report, as *three years in arrears*, the following:

Bates, Noah, Flint.
Bennet, J. E., Plymouth.
Campbell, W. A., Ann Arbor.
Clancy, C. C., Port Huron.
Clark, W. E., St. Ignace.
Cogshall, Bela, Flint.
Crotser, L. S., Edmore.
D'Arcy, Benj., Mayville.
Devendorf, C. A., Detroit.
Eaton, O. P., Detroit.
Edwards, W. F. H., Detroit.
Eves, Wm., Waterford.
Failing, J. F , Grand Rapids.
Flagler, W. F., Imlay City.
Freeman, F. W., East Saginaw,
Gordon, G. G., Flushing.
Green, G. W., Battle Creek.
Handy, J. W., Flint.
Hagler, E. E., Ann Arbor.
Hoyt, E. A., Bay City.
McMeekin, J. W., Saginaw.
Mabbs, J. A., Holland.
Main, F. W., Jackson.
Marshall, Joseph, Gaines.
Matthews, J. D., Gaines.
Merritt, S. W., Fort Gratiot.
Mills, H. R., Port Huron.
Morris, Richard, Vassar.
Nichols, A. W. Greenville.
Phillips, H. H., Vandalia.
Richmond, P. E., Mt. Pleasant.
Rose, G L., Decatur.
Ward, W. E., Fenton.
Weaver, L. F., Nashville.
Wiggins, O. B., Lawrence.
Williams, John R., White Pigeon.
Wooster, S. R., Grand Rapids.

These latter will now be dropped from membership.

The removals since our last meeting have been as follows:

W. F. BERRY, from Mt. Clemens to Niellsville, Wis.
J. L. BURKART, from Big Rapids to Grand Rapids.
T. S. MURDOCK, from Ypsilanti to Northville.
E. H. TROY, from Ann Arbor to Detroit.

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Five deaths have been reported:

EUNICE J. AVERY, Coldwater, July 26, 1895.
A. H. FORSYTH, Lake View, March 26, 1895.
L. H. JOHNSON, Detroit, January 30, 1896.
CHAS. F. MAASBACHER, Saginaw.
JAMES S. NOYES, Providence, R. I., February 16, 1896.

Two resignations have been sent to the secretary:

H. C. FAIRBANK, Flint.
GEO. W. GREEN, Battle Creek.

The secretary earnestly desires further information as to changes of residence, etc., that our membership list may be correct in every particular.

With best wishes for the entire success of this, our thirty-first annual meeting, I remain,

Yours very respectfully,
COLLINS H. JOHNSTON,
Secretary.

THE VICE-PRESIDENT: What action will you take on the report of the secretary?

DR. MACLEAN: I move that it be accepted and adopted.

Carried.

THE VICE-PRESIDENT: The next thing in order is the annual report of the treasurer.

The treasurer, Dr. W. G. Henry, submitted the following report:

The President and Members of the Michigan State Medical Society:

In rendering my report for the last year I do so with feelings of pleasure and gratitude. I am deeply grateful for the kind message of sympathy sent me by the society in session at its last meeting when I lay ill in my bed; and for the kindness of Drs. Southworth and Hitchcock who so satisfactorily assumed my duties for me at that time; and pleased by your action at that time in re-nominating me as your treasurer. During the past year our expenses have been large and our receipts rather small.

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Extraordinary disbursements at the last meeting and during the year made serious inroads into our funds; this coupled with a greater than ever hesitation on the part of numerous members in paying their dues will account for a smaller balance than usual this year. However, we can felicitate ourselves in being in a good financial condition and free from debt.

From observations made during the past years it has occurred to me that the number of our transactions printed could safely be limited to a smaller number than our membership. Every year we have from twenty-five to fifty members who allow their membership to lapse for non-payment of dues, and as we do not send copies of the transactions to those whose dues are not paid we have annually a number of copies left on our hands. These only serve to encumber the secretary and eventually prove a source of expense in caring for them. A suggestion that might here be made would be to let the secretary or treasurer after each meeting send out notices to each member in arrears that unless his or her dues were paid by the time the transactions were ready to go to press that they would not be included in the list of those entitled to copies. It has been pointed out before to this society the great expense of each copy of the transactions. Since the division of the meetings into sections it has also been noticed that it is attended by additional expense. Chairmen of sections and their secretaries are at times put to expense which the society is sometimes called upon to pay. All of these outlays could be met easily were the members to be prompt in paying their dues; still there is much room for economy. During the past year the receipts and disbursements have been as follows:

RECEIPTS.

Balance on hand at last meeting	$ 344 80
Fees collected at Bay City	769 00
Fees collected during the year	572 00
	$1,685 80

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DISBURSEMENTS.

Honorarium voted secretary	$ 250 00
Use of M. E. Church, Bay City	75 00
Honorarium voted Dr. G. V. Voorhees	50 00
Honorarium voted treasurer	100 00
Reporting	181 20
Distributing transactions	92 27
Expense of committee on admissions	23 50
Printing	686 34
Secretary's expenses	63 49
Treasurer's expenses—postage	4 00
Dr. A. P. Biddle, sections expenses	28 60
Dr. G. Dock, expense on program committee	2 10
R. R. Association special agent	5 00
Balance on hand	124 30
	$1,685 80

ASSETS.

Membership fees due	$ 888 00
Cash on hand	124 30
	$1,012 30

LIABILITIES—None.

It is with regret that I am compelled to report seventy-one members in arrears for one year, thirty-six in arrears for two years, fifty-one in arrears for three years. In compliance with the by-laws I have reported the members who are in arrears for two and three years to the secretary. All of which is respectfully submitted.

WILLIAM G. HENRY,
Treasurer.

THE VICE-PRESIDENT: What disposition will you make of this report?

Dr. WILSON: I move its adoption. Carried.

The secretary then read the report of the publication committee, which is as follows:

Mr. President and Members of the Michigan State Medical Society:

Your publication committee begs leave to make the following report:

Acting upon the advice of your former secretary, Dr. Hitchcock, but 600 copies of the transactions for 1895 were printed, fifty less than the year previous. For this reason, and also

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because the work was done at a lower rate than formerly, the printing of the transactions for 1895 cost the society $155.00 less than the issue of 1894, the book being of about equal size. There are still 135 copies in the possession of the secretary.

The cost was as follows:

Printing, binding, etc., 600 copies	$ 580 00
Postage, expressage, etc.	92 27
Wrapping	10 00
	$ 682 27

Respectfully submitted,

COLLINS H. JOHNSTON,
Chairman and Editor.
ANDREW P. BIDDLE.
A. E. BULSON.
CHAS. W. HITCHCOCK.
J. B. WHINERY.

On motion of Dr. Alvord, the report of the committee on publication was accepted and adopted.

THE VICE-PRESIDENT: We will now listen to the report of the committee on necrology.

The chairman of this committee, Dr. Mary E. Green, read the following report:

IN MEMORIAM.

M. E. WHALEN,
SAMUEL M. WILKINS,
JAMES FANNING NOYES,
CHARLES F. MASSBACHER,
LEVI H. JOHNSON,
EUNICE J. AVERY.

DR. M. E. WHALEN, of Paw Paw, who died on the 26th of May, 1895, was born in Cayuga county, New York, August

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26, 1860. His parents came to Van Buren county, Michigan, when he was but two years old. Here the doctor spent his early years in attending school and teaching. He began the study of medicine in an office in Paw Paw about 1882. Soon after he entered the university and studied two years. Then he settled in Sherman, Michigan, where, after two years of practice, he returned to the university, graduating with honor in 1889. He at once settled in Paw Paw, and in the eight years of his residence there achieved a remarkable success as both general practitioner and surgeon. He also became interested in business matters, being at the time of his death a director in the First National Bank of Paw Paw. He was a man of fine address and was universally regarded as one of the rising men of the profession which he so graciously adorned.

DR. SAMUEL WILKINS was born in Wayne county, Ohio, August 16, 1836. He died at Eaton Rapids, Michigan, June 24, 1895. Until seventeen years of age he spent his time working on the farm in the summer and attending school in the winter. Then he entered college at Haysville and fitted himself for teaching. After teaching some two years his health failed, and he made the journey across the plains to California with an ox team. In 1861 he returned to Ohio. In August, 1862, he enlisted in the One Hundred and Second Regiment, Ohio Infantry. At the battle of Stony river he was detached from his regiment and assigned to hospital duty as assistant surgeon, which he occupied until he was mustered out, June 6, 1865. After the close of the war he continued the study of medicine at Sterling Medical College, and graduated in 1866. He was a member of the American Medical Association, State Medical Society, and of the Local County Society of Barry and Eaton. He was a member of the legislature for the terms of 1879 and 1882, and was elected to the state senate in 1893. Dr. Wilkins' character, both in public office and as a private citizen, was always straight-forward and manly. He was a scholar, soldier and gentleman. And no greater compliment can be paid him than the fact that he possessed the entire confidence of the community in which

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he lived for thirty years, not only as a physician and surgeon, but in holding offices of public trust.

DR. JAMES FANNING NOYES, one of the oldest and best known physicians in the state, died at Providence, R. I., February 17, 1896. Dr. Noyes was born at South Kingston, R. I., August 2, 1817. He began to study medicine in 1842 at Waterville, Maine, and in 1844 took his first course of lectures at the medical department of Harvard University, after which he went to Jefferson Medical College at Philadelphia, where he graduated with honor in 1846. In 1849 he began to practice medicine at his early home. Four years later he made his first visit to Detroit; owing to ill health he did not begin the practice of medicine, but soon after he made the journey to Europe in a sailing vessel, where he spent several years studying in the hospitals. When he returned from abroad he entered into a large and lucrative practice at Waterville, Me. In 1858 he again went to Europe to continue his studies. In 1863 he settled in Detroit. He was the pioneer opthalmologist of the northwest, and was professor of diseases of the eye and ear at the Detroit Medical College, member of the American Medical Association of the American Ophthalmogical and Otological Society, Michigan State Medical Society, Detroit Academy of Medicine, and honorary member of many other associations. He was the author of many valuable contributions to medical literature, and his life work was devoted to the calling in which he excelled. Dr. Noyes was gentle by nature and imbued with a philanthropic spirit, which led him to give largely to institutions both public and private. He donated a large sum to a hospital in Providence, R. I., to establish free beds. At "Oak Grove," Flint, the hospital for nervous diseases received large donations from him. The hall for the amusement of patients was built and equipped by his generosity, and bears his name. He was a man of broad culture, kind, gentle and full of sympathy for the suffering and unfortunate.

CHARLES F. MASSBACHER was born in Saginaw and received his education at the high school of that city. He entered the medical department of the Michigan University, studying

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there for two years. Entering Bellevue Hospital Medical College, he graduated in 1886. He then located in Saginaw and began to practice with his father, Dr. Karl Massbacher. After the death of his father, in 1893, he removed to West Superior, where he practiced for two years. Feeling the desire for a more extended knowledge of medicine and surgery, he went to Germany where he spent one year studying in the hospitals. After he returned from abroad he opened an office in Toledo, Ohio, which was at the beginning of the present year. It is especially sad to record that a man so full of promise was found dead in his bath-tub, with a bullet in his brain; the work of his own hand, prompted by despondency.

Dr. Levi H. Johnson, who died January 31, 1896, was one of Detroit's most prominent and highly respected colored citizens. He was born in Uniontown, Pa., September 16, 1842, and educated at Oberlin College. At the conclusion of his studies, he became conductor on the Michigan Central Railroad, and while so employed began the study of medicine, reading during his spare moments. Later he entered Chicago Medical College, and graduated from that institution about twenty years ago, removing to Detroit, where he began the practice of his profession. He was a member of the Detroit Medical and Library Association, President and Medical Director of the Beacon Light, and Treasurer of Zach Chandler Lodge. He was also ex-president of the Douglass Frontier League. He took a very prominent and active part in all matters pertaining to his race, and was a great honor to the profession.

Dr. Eunice J. Avery was born in Honesdale, Pa.; she died July 26, 1895. After coming to Michigan she attended several terms of school at Hillsdale College, then she entered the University of Michigan, and graduated from the medical department about six years ago. She was appointed resident physician at the State Industrial School. After two years in that institution she began practice in Coldwater. Dr. Avery was a woman of rare qualifications, an earnest and most conscientious student, who fully recognized the sacredness of her

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chosen profession. By her close application to books and honest work she reached that high standard to which she aspired. She had a large and lucrative practice and was one of the most successful physicians in the city. This was not only due to her knowledge but to her dignity of manner and true worth, which gave her a most charming personality.

On motion, the report was adopted.

THE VICE-PRESIDENT: Reports of special committees are now in order.

DR. MACLEAN: Inasmuch as none of the members of the committee on admissions are present, I move that the president appoint a committee *pro tem.* for the purpose of performing the functions of this committee. I understand that there are a number of applicants for admission, and it does not seem proper that we should keep them waiting on account of the absence of the members of the committee. Carried.

THE VICE-PRESIDENT: I will appoint as that committee Dr. Wilson of Rochester, Dr. Peterson of Grand Rapids, and Dr. Stockwell of Port Huron.

The reports of several committees were called for, but passed in the absence of the chairman.

THE SECRETARY: I have here a report of the committee on ways and means to increase the membership of this society.

THE VICE-PRESIDENT: You may read it.

The secretary then read the report as follows:

Mr. President and Members of the Michigan State Medical Society:

Your committee on ways and means to increase the membership of this society respectfully submits the following:

We believe that the constitutional provisions for securing membership in this society constitute the greatest barrier to its rapid growth. At present many men in good standing who are desirous of joining this society are prevented from doing so by inability to attend our meetings. Your committee is of the opinion that if membership in this body could be obtained at any time of the year, and without the necessity

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of being present at a meeting, our membership would be largely increased and interest in the society greatly augmented. Membership may now be had in the American Medical Association and several state societies by simply making application and being elected by a duly authorized committee. Signing the application is considered to be a subscription to the constitution and by-laws. Such members need never attend a meeting, but receive a copy of the transactions as long as they are in good standing.

At our last annual meeting the rule that an applicant must be present at a meeting in order to obtain election was rescinded. But members can still be elected only at a regular meeting of the society, and the applicant must sign the constitution and by-laws, which at present necessitates his presence.

Your committee also believes that the adoption of some such plan of professional organization as was suggested by Dr. Boise in his presidential address two years ago would be of great benefit to this society, as well as to the medical profession of the state and nation. There are over one thousand members in the local societies of this state, but only about five hundred in this society. Dr. Boise's plan contemplates such a union of local, state, and national societies that a man joining a local society becomes at the same time a member of the state and national bodies. The full realization of this plan of organization of the medical profession does not come within the scope of this committee's work, but we believe that the affiliation in this manner of the local societies in this state with the state medical society, is practicable and commendable.

Your committee therefore recommend :

1. That a committee of three be appointed by the chair to make such changes in our form of application, and to draft such amendments to our constitution and by-laws as will permit the securing of membership in this society at any time of the year, and without the necessity of attending a meeting of the society, the committee to report to-morrow morning.

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2. The appointing of a committee of five by the chairman to formulate plans of affiliation of this society with the local medical societies of the state in such a manner that any one joining a local society becomes at the same time a member of the state society; also to confer with the local societies of the state to ascertain if such affiliation is desired by them.

3. That every regular physician in the State of Michigan be sent an announcement of the next meeting of this society, together with a blank application and the essential provisions of the constitution and by-laws pertaining to membership.

COLLINS H. JOHNSTON.
LEARTUS CONNOR.
E. BOISE.
P. O. PATTERSON.
C. T. NEWKIRK.

DR. MACLEAN: I move that the report be accepted, and that a committee be appointed as suggested in the report; carried.

THE VICE-PRESIDENT: I will appoint on that committee Drs. Johnston, Southworth, and Dodge of Big Rapids.

Dr. Wilson, chairman of the committee on admissions pro tem., read the names of several applicants for membership as recommended by the committee, and on motion they were all elected members of the society.

DR. MACLEAN: I call the attention of the society to what appears to be an oversight. On page 582 of the transactions of last year we read the following: article III, section 9 of the constitution; "Nominations for president and secretary shall be made the first order of miscellaneous business at the general session on the morning of the first day of the annual meeting. Under no other circumstances shall nominations or announcement of candidates be made in open session."

Now, Mr. President, I do not know whether we have power to do anything in this matter except to proceed to elect a president. But for myself I am opposed to doing that, and I ask for information and a ruling by the chair whether it is proper and strictly parliamentary at this time to make a motion postponing the election until a later time. If it is so, I will be glad to make a motion to that effect. I would like to

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know from the president as to whether we have this power. The section reads very peremptorily that "Nominations for president and secretary shall be made the first order of business at the general session on the morning of the first day of the annual meeting."

THE VICE-PRESIDENT: I would rule that a motion will not stand to postpone this action.

A MEMBER: Has not this body the power of suspending its rules the same as any other parliamentary body?

THE VICE-PRESIDENT: I do not think so without previous notice.

DR. ROBBINS: The trouble lies in the action supposed to have been taken by the society, but was not taken, and there is no mistake in the minutes. We made no such rule. The understanding was that the whole system we had in vogue last year for the election of president should not be changed this year. I think that is a mistake.

DR. MACLEAN: I agree with Dr. Robbins. My own recollection is that the association was to vote at this meeting whether this change should be made or not, but it was not decided that a change should not be made this year. Notice was given two years ago and last year, and now surely, if ever, we are in a position to take action in this matter. If the system of voting which has prevailed during the last two years is regarded as objectionable, why should we stand on ceremony if this practice is a bad one. The best thing to do is to terminate it at once. I believe that the transactions are in error, and that a final vote ought to be taken this morning.

THE VICE-PRESIDENT: That was my understanding last year.

DR. MACLEAN: If that is a fact, then I would move that this change be made now, and that the report of the minutes as recorded here be corrected, as I am confident that they are incorrect. Instead of reading as it is here in the volume of transactions, it should read that Dr. Maclean gave notice that at the next annual meeting a motion will be made to change article III, section 9, of the constitution so as to read as it is now printed. If we make that change in the

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minutes we will undoubtedly overcome the difficulty. I make a motion now, if it is the sense of the society, that this change in the minutes be made. It will place us exactly right. We do not want to depart from the parliamentary path in any particular, but I think we are doing right in making this correction which certainly ought to be made.

Dr. Maclean's motion was seconded.

DR. DODGE: I think Dr. Maclean has possibly got a little mixed in the use of the word nomination and election. I think the amendment was carried as the minutes state, and my recollection is that Dr. Maclean stated it was not proposed to do away with the old manner of electing officers, but to propose a plan of submitting nominations to the society for action at the secret ballot. This has been carried out during the last two years. The amendment was carried as it reads in the published minutes, and that nominations shall be made at the opening session of the first day, so that members may know who the candidates are for president and secretary. The word nomination is used and not election.

DR. MACLEAN: I think Dr. Dodge is right about that. I see Dr. Hitchcock in the room and possibly he can throw some light on the subject.

DR. HITCHCOCK: I would like to know what the point is that the society is discussing.

Dr. Maclean having explained the matter to Dr. Hitchcock, the former secretary of the society, Dr. Hitchcock stated that the minutes of last year were correct, and that the society could now proceed to nominations for president and secretary and not to election.

DR. MACLEAN: I desire to withdraw my motion and move that we now proceed to nominations for president and secretary, and then the members can go on with the secret ballot as heretofore. Carried.

Dr. P. D. Patterson nominated Dr. Hugh McColl, of Lapeer, for president, and the nomination was seconded by Drs. Maclean, Wilson and Stockwell.

DR. WILSON: I move that nominations for president be closed. Carried.

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DR. SOUTHWORTH: I desire to nominate Dr. Collins H. Johnston, of Grand Rapids, for secretary.

DR. HITCHCOCK: I take very great pleasure in supporting the nomination.

DR. H. O. WALKER: I move that the secretary be instructed to send greetings to the Ontario Medical Association which is now in session at Windsor, Ontario, and that an invitation be extended to them to attend our meeting to-morrow, as their sessions will close to-day.

DR. MACLEAN: I second the motion. Carried.

The following telegram was sent at the close of the session:

MT. CLEMENS, MICH., June 4, 1896.

To the Secretary of the Ontario Medical Association, Windsor, Ontario:

The Michigan State Medical Society sends greeting and good will to their brethren of the Province of Ontario.

HUGH McCALL,
President.

DR. REUBEN PETERSON: I think it is an oversight in not having the first vice-president nominated in the same way as the president and secretary.

THE VICE-PRESIDENT: The method of balloting would have to be changed.

DR. MACLEAN: Of course, the method of balloting would have to be changed anyway, and the only way to do is to hand over the nomination of the vice-presidents to the nominating committee. It seems to me this is the only way to settle that difficulty. A motion had better be made changing the method of election to the effect that it is now the sense and wish of the society that the election of vice presidents be made by the nominating committee along with the other officers.

THE VICE-PRESIDENT: Do you make that as a motion?

DR. MACLEAN: Yes.

THE SECRETARY: It would have to be considered as an amendment to the by-laws.

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A MEMBER: A way to get out of this difficulty is to nominate somebody else for president.

DR. HITCHCOCK: In order that we have another candidate in the field as vice-president, and one who will be a credit to the society, I nominate Dr. Southworth, of Monroe.

THE VICE-PRESIDENT: Is there anything further under the head of miscellaneous business to come before the society?

DR. MACLEAN: Before we leave this I wish to give notice that at our next meeting I shall move to amend the constitution so that the nomination of vice-president be placed in the same category as that of the president and secretary, and that the clause pertaining to the nomination of officers, article III, section 9, be so changed as to read, "president, vice-president and secretary." (Laid over.)

THE VICE-PRESIDENT: Is there any more miscellaneous business to transact?

THE SECRETARY: We have an amendment which was offered last year by Dr. Walker, to strike out article V of the constitution and substitute for it the following:

"Article V—Scientific work.—To facilitate professional and scientific work, all papers presented to the society shall be read before the whole society assembled for scientific session."

DR. H. O. WALKER: As I offered that amendment last year, it is only right that I should, perhaps, say a few words regarding it at this time. This question of having all the papers read before the general body is one that has been brought to our attention from time to time, and it was settled some time ago by dividing the society into sections. For certain reasons it would seem to me, although the sectional work is done well, much more desirable to have papers read before the whole society. The majority of the members of this society are ladies and gentlemen who attend its meetings for the purpose of getting all the information they can regarding general medicine and surgery. They are not specialists. Therefore, it would seem that this society could so conduct itself that these papers could be read and heard by everyone. Now we have a section on medicine, one on surgery, and a new one on abdominal surgery. There may be going on at

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the same time papers that every man would like to hear, but he is debarred from it. This society is not so large but what it can meet in joint session and have the papers read before the general body. The business of the society could be so conducted that we could do away with a good deal of the business portion, which undoubtedly sometimes consumes a good deal of time. As was said this morning by a gentleman, there is a fat argument on both sides of this question. I am willing to compromise in this way, that we divide the society into two sections, general medicine and general surgery, and whatever comes under the head of surgery let it go there, and what comes under the head of medicine let it be presented before that section. A man cannot become a specialist shortly after graduating from a medical college and pose as a learned man. The process of evolution is necessary to make a good specialist; therefore, most of the members of this society are not afraid to read their papers in these two sections that I propose. I would like to hear from others on the subject.

DR. MACLEAN: I would like to say a word or two in regard to this matter because I believe I made the original motion to divide the society into sections, although I thought at first we only had two, after which one more was added. But I admit there is a good deal of force in every word Dr. Walker has said. He has put the matter in a fair and just light. It is a subject which deserves our most careful consideration before we take definite action. The compromise that Dr. Walker suggested, so far as I am personally concerned, is perfectly satisfactory. We have at present on the program eighty-two papers to be read at this meeting in the various sections. These papers have been prepared with care and the authors are anxious to read them. If each one had to read his paper before this society, not one-third, or even one-half of them would have an opportunity to present their contributions. I know from personal experience that when a man takes trouble to write a paper he likes to have the satisfaction of reading it and having it discussed. To write a paper, bring it here, and not have an opportunity of reading it is very discourag-

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ing, and I think we ought to be careful how we proceed in order that we may not do anything to discourage members of the association. I do not think dividing the society into two sections will have that effect. It will probably have a better effect. If you will look over our transactions you will notice that from the time we adopted section work the volumes were more than doubled in size what they had ever been before. There was more than double the work done, and there has been every year since. More than that, I can remember very well when all of the papers were read in general session. Some one read a paper on glaucoma, or some interesting subject of that kind, and every member present who was not interested in eye troubles, got up and went out. Those who had prepared papers on other subjects did not have an opportunity to read them. We want the program so arranged that every member of the society will be interested in everything that comes up.

DR. HITCHCOCK: I rise to a point of order. I would simply ask if the constitution does not require that notice of an amendment be given and laid over for one year. I do not think a substitute can be offered and come before the society without having laid over one year.

DR. ALVORD: It has been decided that it can be done.

THE VICE-PRESIDENT: I think the doctor is mistaken about that.

DR. ALVORD: As a member of the original committee appointed for dividing the society into sections, and as one who has watched it from its infancy up from the time section work began, I am opposed to this motion. I have great respect for our ex-presidents. They are supposed to know a good deal, and as a matter of fact they are men possessed of wide knowledge and experience. That is why we honor them with our suffrages. But our presidents and ex-presidents have made mistakes. Let us look at this matter for a moment and see what the facts were in regard to the society work before we divided it into sections. Our attendance was small, and in our report on the advisibility of dividing into sections the argument was used that we needed greater scientific spirit,

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and that would be a wise way to obtain it. The number of papers was comparatively small, likewise the membership. We tried going from one side of the state to the other to increase our membership. We did increase it for a while, but some would gradually drop out. We could not sustain interest in the society that we have been doing for the last few years with section work. The number of papers have greatly multiplied, the number of members has increased. To be sure, there were financial difficulties during the last few years, and I have no doubt our attendance was materially lessened on this account. Very many men who could have ordinarily kept up their dues have found it difficult to do so. It has affected every business interest. It has affected mostly our medical societies. There is a more earnest scientific spirit inculcated when section work is carried out, because if you have a section to read papers to there are a number of members who are directly interested in the same work that you are interested in. If we go back to the old method of reading papers before one section, or if we simply divide the society work into two sections, one on general medicine, and one on general surgery, there will be a lessening of scientific interest and the number of papers will be less. Perhaps a less number of papers might be of some advantage, but very many of our best papers would not be read, for the simple reason that you cannot get men to carefully prepare papers and read them before a general body like you can if you were to read such papers to those who are particularly interested in the same class of work. That we have found to be true in the working of the society. I hope the members will be slow to give up a single section. Our section work has been eminently satisfactory in the past. I grant you that there have been some objections to it, but the objections are less than those to make any change. It is very important that this change be not made. There are to-day eighty papers on the program. The original committee, when they undertook this thing, saw that there were only two ways out of this, namely, that we had to either divide into sections or increase the number of days for the general session.

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DR. C. HENRI LEONARD: I think any motion to change our by-laws must lie over for one year. The question is then, can we vote upon the substitute introduced by Dr. Walker? On that basis I would ask for a ruling of the chair.

THE VICE-PRESIDENT: The chair would rule that Dr. Walker's substitute cannot be acted upon at this time.

DR. LEONARD: It seems to me, as Dr. Alvord has stated, we would be taking a step backwards if we make the mistake of endorsing the amendment introduced by Dr. Walker last year, and which is before us for action this year. It is one of the worst things that can occur to the society. It is said that eighty papers are to be read before the three sections. If this is done, what are we going to do with the discussions? It is more a matter of mathematics than a question of politics, so far as the present session is concerned. What will be the future result? It will be the same as it was ten years ago before we took up section work. At one time we only had twelve or more papers that were read before this body. This of itself shows that we are taking a step backward by making any such change in our by-laws. I think it is better to increase the number of sections rather than abolish them. I would favor that, if necessary.

DR. WALKER: It seems to me we can dispose of this matter to-day either one way or the other, and I therefore move that we suspend the rules in regard to my substitute.

DR. MACLEAN: I am in favor of suspending the rules.

DR. FROTHINGHAM: Do I understand by suspending the rules it is intended to vote on this substitute?

THE VICE-PRESIDENT: That is the intention.

DR. FROTHINGHAM: I am opposed to that. I think we need more time, for this is one of the most perplexing questions we have to deal with; how to arrange whether we shall have two sections or not, or whether we shall have a three days' session or not, as suggested by Dr. Peterson, and have all the papers read before the general body. It is a subject that ought to be well thought over and presented here, and a year's time is none too much for the careful consideration of that question. I am opposed to suspending the rules. I

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would be opposed to taking action on Dr. Walker's substitute inasmuch as it is virtually an amendment. We can, however, either reject or adopt the amendment he offered last year, and even on that question I am decidedly opposed to such a change. I remember very well the condition of the society when we had one general session, when it has been truly said only a few papers were read. It was a difficult matter to get men to write and read papers before the general body, because those who prepared good papers did not have time to read them. When a member of this society prepares a paper he is entitled to read it. Indeed, he is entitled to more—he is entitled to a fair discussion. For what purposes do we come together? It is not for any one man's views on a particular subject, but we come to learn the united experience of the members of this society, and we come here to hear something that we do not get in text books and in literature except in these society meetings. It would be unwise to make a change without due time for consideration.

THE SECRETARY: I rise to a point of order.

THE VICE-PRESIDENT: State your point of order.

THE SECRETARY: Dr. Walker's motion to suspend the rules can apply to the by-laws only. We can amend the constitution only by a two-thirds vote after the amendment has laid on the table for one year.

DR. HITCHCOCK: It appears to me that we might easily decide this whole matter. The question before us is, shall we abolish the section or not? I think the sentiment is clear. We have here an amendment which has lain over for one year, and in order that we may dispose of it I move its adoption; seconded.

The vice-president put the motion to adopt Dr. Walker's amendment, but it was lost.

DR. WALKER: I now give notice, Mr. Chairman, of an amendment to divide the society into two sections, one on general medicine and one on general surgery. (Dr. Walker later requested that this proposed amendment be dropped.—Secretary.)

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DR. HITCHCOCK: I rise to give notice of another amendment somewhat similar to Dr. Walker's. It seems to me it was a great injustice in changing the sections last year. Heretofore there was a section on obstetrics and gynæcology. The gynæcologists and abdominal surgeons seemed to temporarily, at least, predominate in that section, and so an amendment was worked through last year which makes that section now a section on gynæcology and abdominal surgery. I am not a gynæcologist nor an abdominal surgeon, but I have the impression that both gynæcology and abdominal surgery at the present day are quite extensive, and on this account over one-third of the sections is delivered over to the abdominal surgeons, who are a small number of our membership. It works injustice in this way, in that it relegates all papers on obstetrical subjects to the field of general medicine, which is already filled. It presents the spectacle of forty-three papers being crowded into the section on general medicine. It is impossible for this section to do justice to such a large number of papers, and some of them necessarily have to be crowded out of the section. I therefore give notice at this time of an amendment to article V, section 1, of the constitution, which shall read as follows: Division into sections. To facilitate professional and scientific work three sections are established, namely,

First, a section on general medicine.

Second, a section on surgery and ophthalmology.

Third, a section on obstetrics and gynecology.

This amendment has for its object returning to the old division of sections which we had heretofore. (Laid over.)

THE VICE-PRESIDENT: I understand that the committee on admissions have a report to make.

Dr. Clark then read the names of several applicants who were reported favorably upon by the committee, and on motion they were declared duly elected.

DR. CLARK: There is one matter of importance to the committee on admissions which I think ought to be settled now. I see the chairman of the committee is here and ready to make a report, and if the society decides what to do it

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would be a future guide to the committee on admissions. We have already applications from parties who will be affected by the report of the committee on medical legislation.

DR. MACLEAN: I move that we go back to the order of reports of special committees. Carried.

THE VICE-PRESIDENT: I call for the report of the committee on embalming methods, of which Dr. Clark is chairman.

DR. CLARK: The report is in the hands of Dr. McGraw. I thought he would be here before myself. I will make the report to-morrow.

Dr. Herbert M. King, of Grand Rapids, read the annual address of the orator of the section on medicine and obstetrics. He selected for his subject, "Physical Diagnosis and Modern Therapeutics."

Dr. C. Henri Leonard read the following report, but before doing so prefaced it with the following remarks: The sum and substance of our report is upon the admission of members to our society who do not hold regular diplomas. Last year two such parties were proposed for membership and received the endorsement of some of our best and most active members, and the committee of which I am chairman, and Dr. Wade, of Holly, with me have discussed this question pro and con. Our report I will read to you now.

Report of the committee appointed to amend the constitution and by-laws:

Your committee to whom was assigned the duty of providing for a board of examiners to enquire into the professional qualifications for membership in this society of those persons who do not hold regular diplomas would beg leave to report as follows:

After due deliberation and thought upon the matter we think that the clause at the end of section 5 of article III covers the ground sufficiently. This article reads as follows:

"It shall be the duty of the committee on admission, upon receiving the names of the candidates for membership, to make due inquiry and report such as may be found worthy to the society, which may thereupon elect them. *Should the*

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committee fail to report upon nominations submitted to them, any member having made such nomination may renew the same directly to the society, in which case a vote of four-fifths of the members present shall be required to constitute an election." This in connection with section 1 of article II of the constitution, which reads as below, we think will cover the few speeial cases, as asked for by Drs. Maclean, Hitchcock, Gier, Shurly, Boise and Carrow at our last meeting.

"The resident members *shall be regular practitioners of medicine and surgery in the state of Michigan, who shall be elected by vote of a majority at any regular meeting*, their eligibility having been previously reported upon by the committee on admissions."

Nowhere in our constitution is a *graduation* from a regular medical institution made a condition for membership; but one must be a regular practitioner of medicine and surgery in order to become a member.

The "code of ethics" of the American Medical Association bears out this position in what it says section 1 article IV as follows: "No intelligent regular practitioner, who has a license to practice from some medical board of known and acknowledged respectability, recognized by this association, and who is in good moral and professional standing in the place in which he resides, should be fastidiously excluded from fellowship, or his aid refused in consultation when it is requested by the patient." This clause of the code has had special attention drawn to it by a committee appointed for that purpose by the American Medical Association in 1884-5; Dr. N. S. Davis was chairman of that committee, and in his report to the association explaining this clause, above quoted, said in his report the following: "Whereas persistent misrepresentations have been and still are being made, etc.; Resolved that clause I, article IV, in the national code of ethics is not to be interpreted as excluding from professional fellowship on the ground of differences in doctrine or belief those, who, in other respects, are entitled to be members of the regular medical profession. Neither is there any other article or clause of the said code of ethics that interferes with

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the exercise of the *most perfect liberty of individual opinion and practice.*" This report to the American Medical Association in 1885 was signed by N. S. Davis (author of the code), A. Y. P. Garnett, H. F. Campbell, Austin Flint and J. B. Murdock.

This then being the status of the code, which we are bound to follow as a society and as individuals, after becoming members of the Michigan State Medical Society, your committee would recommend the following as the proper course or procedure for the committee on membership to follow upon the recommendation of physicians for membership who are not graduates of any school of medicine, or who are graduates of schools not recognized by the code of ethics, but who are not practicing under any exclusive dogma, and do not so intend to practice in the future :

I. Receive the application of said applicant for membership, duly made out and with the proper recommendation from *two* of our members.

II. Ascertain the facts in regard to the applicant's style of practice and moral standing in the community where he lives and practices, as required by the code, and report the same to the society when reporting the action upon other applications.

III. Then one of the members signing the applicant's paper for admission will, in accordance with section 5 article III of our constitution and by-laws, renew the application directly to the society, and if a four-fifths vote in his or her favor be then secured from the members present, such an one may then be declared elected to membership in the Michigan State Medical Society.

Respectfully submitted,

C. HENRI LEONARD.
D. W. C. WADE.

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GENERAL SESSION.

THURSDAY, JUNE 4th, 7:30 O'clock P. M.

The annual addresses were delivered as follows:

President's address: "William Beaumont and his Work." Victor C. Vaughan, Ann Arbor.

Address on surgery: "The Doctor's Hobby Horse." C. H. Baker, Bay City.

Address on gynecology: "The Prevention of Pelvic Disease." Reuben Peterson, Grand Rapids.

The society then adjourned to the dining hall of the New Egnew.

THE BANQUET.

The holding of a banquet to which all members of the society and their wives were invited was something of an innovation in the annual gatherings of the society, but the occasion proved to be a most enjoyable one. It was after ten o'clock when order was called, and the toastmasters, Drs. H. B. Osborn, of Kalamazoo, and J. H. Carstens, of Detroit, were introduced.

The toasts and responses were as follows:

"The State Medical Society." Charles G. Jennings, Detroit.

"Our Mineral City." Hon. Edgar Weeks, Mt. Clemens.

"Medical Laws of Michigan and Their Future." Eugene Boise, Grand Rapids.

"Higher Medical Education and Its Future." George Dock, Ann Arbor.

"The American Medical Association." Donald Maclean, Detroit.

"The Quack in Michigan and his Future—To Be or Not To Be." G. V. Voorhees, Detroit.

"The Country Doctor." P. A. Knight, Utica.

"The City Doctor." E. L. Shurly, Detroit.

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SECOND DAY—GENERAL SESSION.

FRIDAY, JUNE 5TH.

The society was called to order at 11 A. M. by the vice-president.

Reports of special committees were again taken up, and Dr. Leonard, chairman of the committee to take action on establishing a national bureau of health, said: Your committee has no formal report to make, for the reason that the president of the United States did not incorporate in his message to congress this year as he did last year, anything bearing upon this matter, and during the year there have been so many things which have depleted the treasury that the establishment of a national bureau of health has been entirely forgotten; hence your committee has thought best not to do anything by stirring up the representatives from our state in congress. Your committee was empowered to spend a certain amount of money. We have not spent any money. This is the only report we have to make at this time.

THE VICE-PRESIDENT: You have heard the report of the committee. What disposition will you make of it?

DR. MACLEAN: I move that the report be accepted and adopted and the committee continued. Carried.

DR. CLARK: The committee on admissions desire to make a further report, and recommend that the names of the applicants read be admitted to membership.

DR. HERDMAN: I move that the report be accepted and the membe s declared duly elected. Carried.

DR. CLARK: Dr. E. Conley, of Columbiaville, at the last meeting of the society, asked to be readmitted as a member by paying his dues, and your committee recommend that he be re-instated, and that a copy of the transactions of 1890 be forwarded to him.

DR. HERDMAN: I move that the recommendation of the committee be adopted. Carried.

DR. CLARK: Your committee has the application of Dr. G. W. Mahoney, a member of the society, but now residing outside of the state, in which he wishes to be placed as a

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corresponding member. Your committee would recommend that the society take action in this matter, not deeming it wise to make any specific recommendation themselves.

DR. MACLEAN: I move that the request of the doctor be granted. Carried.

DR. CLARK: We have received the application of Dr. O. H. Gates, of the county of Ottawa, for membership. The members of the committee on admissions have examined the matter and are very well satisfied with the reputation and standing of the doctor, and unanimously and heartily recommend him to the society as a member.

DR. HERDMAN: I move that the recommendation be adopted. Carried.

Dr. Carrow read the following invitation from the regents of the University of Michigan:

I am requested to announce, by a committee having the matter in charge, that the regents and faculties of the University of Michigan propose to acknowledge the twenty-fifth year of President Angell's incumbency by suitable exercises and a banquet on the 24th of June. Representatives of all of the universities and colleges of the country will be present and deliver addresses. Such physicians, members of this association, who are alumni of the university are cordially invited to be present to assist in making the occasion a memorable one.

The report of the committee on nominations was presented by Dr. Shurly, as follows:

Mr. President:

Your committee on nominations have the honor to report the following nominations:

For second vice-president, Dr. A. B. Chapin, of Mt. Clemens.

For third vice-president, Dr. Della Pierce, of Kalamazoo.

For fourth vice-president, Dr. Carl Bonning, of Detroit.

For treasurer, Dr. Wm. G. Henry, of St. Clair Springs.

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For the judiciary council (three years), Dr. G. K. Johnson, of Grand Rapids; Dr. H. Kremers, of Holland; Dr. Jno. F. Jenkins, of Tecumseh.

Place of next meeting, Grand Rapids.

Respectfully submitted,

E. L. SHURLY,
H. B. OSBORNE,
W. T. DODGE.

On motion the report was accepted and adopted.

THE VICE-PRESIDENT: We have some special committees who have not yet made their reports, and one of the first is the report of the committee on embalming methods.

Dr. Clark read the report of this committee, as follows:

To the Michigan State Medical Society:

GENTLEMEN: Your committee appointed at the last meeting of this society to take into consideration the matter of embalming practices, beg leave to report as follows:

They have given the matter due consideration and have the honor to recommend that in a matter of so grave importance as this we consider direct legislation necessary, and in order that such legislation may be obtained it is necessary that a bill be properly prepared for presentation at the next session of the legislature. We recommend that such bill be drawn under good legal advice, and therefore suggest that this body instruct its secretary to secure the services of an attorney and have a bill drawn up embodying the proposition that in all cases of suspicious and sudden death no undertaker be permitted to embalm the body of the deceased person until the attending physician or coroner has reported such case to the board of health, and that undertakers be expressly prohibited from injecting into any body any solution containing poisons or disinfectants, or making any section, until he is in possession of a permit from the properly constituted health officer.

Respectfully submitted,

JOHN E. CLARK,
W. F. BREAKEY.

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THE VICE-PRESIDENT: What disposition will you make of this report?

DR. LEONARD: I move that it be accepted and adopted; seconded.

DR. MULHERON: The committee recommends the measure they have proposed only in suspected cases. It seems to me that does not go far enough. No undertaker should be permitted to use a poisonous injection which would intertere with any subsequent examination which might be necessary without express permission. Who is to decide whether the case is a suspicious one or not? It seems to me the object of the law will be defeated. Some provision more stringent than this would be necessary in order to achieve the full purport of the supposed law.

DR. CLARK: I will say that the matter of which the doctor speaks was carefully considered by the committee, and we decided that in order to secure legislation it is advisable to ask a good deal less. It is easier to amend a bill than it is to introduce an apparently arbitrary measure, which would certainly meet with violent opposition from the undertakers of the state. In order not to be defeated we deem it best to present the bill in its present form and afterwards obtain an amendment.

The motion was then carried.

THE VICE-PRESIDENT: We will now listen to the report of the committee to petition the legislature with reference to an improved plan of registering births and deaths.

DR. CONNOR: Mr. President, the legislature has not been in session since our last meeting, and hence no work could be done by your committee. If it is desired by the society that this committee continue its work at the next session, it will be glad to do so.

DR. BAKER: I move that the committee be continued. Seconded.

DR. W. J. HERDMAN: If the chair will permit a word or two in reference to this matter, I will say that if the committee is going to accomplish anything in the matter of medical legislation, it must have the hearty co-operation of not only

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every member of this society but of every legitimate practitioner within the state of Michigan. It has been very gratifying to me to learn that there is an organization just started, and which I believe is known as the Michigan Medical Legislative League. It seems to me that it is organizing with the proper object in view, namly, of incorporating in its organization sections all over the state, with a view of banding ourselves together for future work which shall be of interest to the people through the physicians. There is a popular notion that when a body of physicians seek legislation it is for themselves. The general public must be disabused of this notion, and must be taught that when medical men seek medical legislation it is for the welfare of the community and not for themselves. There is not a more unselfish man on the face of the earth than the physician, and in order to accomplish what we need in this regard we have got to stand shoulder to shoulder.

Within the last week or two I attended the meeting of the Ohio State Medical Society, and one of the most important subjects brought before that body was a board of registration. They have secured an admirable board of registration, and if such a thing has been accomplished in Ohio it has been by steady persistent efforts, because there is no state in the union that has been more divided in medical and political matters than the state of Ohio, but they have accomplished it by this kind of organization. In the first place they have a central executive committee from the State Medical Society and then organized in each county medical society sub-committees, the purpose of the organization being to influence those who expect to be legislators to accomplish needed medical legislation. Michigan has got to do the same thing. The committee I speak for will do what they can to aid the work of this league. Let us try to be united; let us try to smooth our difference of opinion in order that we may accomplish what we need in the way of medical legislation for the benefit of the people. Something will be done at the next meeting of the legislature and I trust there will be harmony. Carried.

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THE VICE-PRESIDENT: We will now have the report of the committee on professional organization.

DR. EUGENE BOISE: Through some oversight of the secretary of the committee we have no written report to offer. The secretary send letters to nearly all the secretaries of state societies in the union and an abstract of the address in question, requesting each secretary to present it to his respective society and endeavor to secure the appointment of a committee on conference. On the subject of organization he has received replies from fifteen or sixteen who have carefully considered the matter and promised to present it to their respective societies. Your committee is convinced, however, that the initial steps in this proceeding must emenate from the parent organization—the American Medical Association, and recognizing as we do the desirability of uniformity of action throughout the various states, in order that we may accomplish the purpose just stated to you, or other purposes which bear equally upon the profession at large, it seems to us best to recommend the appointment of a committee which shall present the subject of permanent organization to the American Medical Association at its next meeting, or something of that nature.

DR. LEONARD: I move that the report be accepted, the committee continued, and empowered to act in the capacity the doctor has suggested. Carried.

Dr. Maclean then introduced Professor Geike, of Trinity Medical College, Toronto, a member of the Ontario Medical Association, who responded to the invitation extended by the state society.

Professor Geike was received with applause and made a very timely speech in which he thanked the society for the very cordial reception extended to him.

The secretary read the following telegram from the Ontario Medical Association extending greetings to the Michigan State Medical Society:

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WINDSOR, ONT., June 4, 1896.

Secretary Michigan State Medical Society:

The Ontario Medical Association reciprocates most heartily the kind greetings of the Michigan State Medical Society.

F. L. M. GRASSOTT,
President.

DR. LEONARD: Under miscellaneous business I have a matter which I desire to present that concerns most of us individually, but not so much as a society. I am a member of the library committee of our city, and while it may be news to most of you, we have in connection with that library the foundation of a medical department. To my knowledge there is but one public library in the United States which has that attachment. There are several private libraries. That one is in Cincinnati. We have set apart in our library building a large room for the use of medical men to consult medical books. We have not set apart a very large amount of funds to purchase medical books. But this matter came before us at our last board meeting, and I was instructed to present the matter to this society, so it is virtually official from the board. We wish to make a department of medical literature of the State of Michigan as complete as possible, and in order to do that we need back files of our State Medical Society reports. I wrote the secretary, but I have not yet completed the list. We need more than that; we want every reprint we can possibly get so as to be placed on file in this library. We want every medical man who writes original articles for any medical journal to send us reprints of them. We also have medical men whom we pay for their attendance during the open library hours, and you are entitled to go in to consult such files of magazines and books as we have. In this way you can put in a pleasant hour if you are interested in consulting old reports. We want to make this addition to our library as complete as possible. We are spending about one thousand dollars a week. I want you to send your reprints or any old books you may have pertaining to medicine and surgery in Michigan to this library to be placed on file.

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DR. CONNOR: Do you desire books not the result of the work of Michigan physicians?

DR. LEONARD: We desire any books that we can get. If we should get duplicates we will exchange with other libraries.

DR. MACLEAN: I rise for the purpose of making a new and somewhat radical proposition to this society, and I intend to close my remarks by making a motion to have a committee appointed. I will state this in the first place, so that there may not be a question asked as to what motion is before the house. As you are all very well aware, I have been a member of this society for twenty-five years, and I have missed very few of its meetings. I have taken a fair and reasonable interest in all of its proceedings; I have watched its development and progress with pleasure and pride, and I feel constantly imbued with the belief that if it is in my power in any way to make a suggestion, or to set going any plan which can be in any way beneficial to the society, it is my bounden duty to do so. For that purpose I make these remarks. In looking back over the history of the society and considering all the circumstances connected therewith, it has occurred to me that it might be well for us to consider the following proposition. I am not prepared to say whether I would vote for it or not, but I would vote for the appointment of a committee to consider it. Dr. Leonard has stated to you that a foundation for a good medical library has been made in Detroit, and it has occurred to me that this idea might be enlarged until it reached a point where the profession, not only of Detroit, but of the state of Michigan, might ultimately secure for itself a medical reputation and a name. If the plan were adopted by this society of meeting every year in Detroit I believe it would conduce very materially to its interests. The itinerant plan has been tried for a long time, and it has worked fairly well. I do not think we have ever gone to a city where we have not been kindly received, and I have no thought of casting any reflections upon any place where we have met, but it seems to me on the whole that more members of the profession would attend the society, would take more interest in its proceedings, if at the same time they had

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an opportunity to visit hospitals, medical libraries, bookstores, surgical instrument shops, theaters and other places of entertainment. I believe if this proposition could be presented to the wives and daughters of the members of this association there would not be a single vote against it. I am certain that not only the members of this society, but their wives and daughters, would very much prefer going to Detroit once a year than to be going from place to place annually. There are many arguments in favor of this plan, and there are doubtless counter arguments; but I merely offer the suggestion, and I express the belief that the city of Detroit would donate sufficient land for this purpose. If it would not do it the land could be purchased and paid for in time by the society. I believe the society would grow more rapidly, the attendance would be larger, the interest in its proceedings greater, and in addition we would have the advantage of being close to Ontario, and could meet the members of the Ontario Medical Association.

I move that a committee of five be appointed by the chair for the purpose of taking this matter into consideration and making a report at the next meeting.

DR. WALKER: I support the motion. Carried.

The president later appointed the following to serve on this committee:

DONALD MACLEAN, Detroit.
C. B. STOCKWELL, Port Huron.
C. B. BURR, Flint.
H. B. OSBORNE, Kalamazoo.
S. C. J. OSTROM, Saginaw.

DR. HITCHCOCK: Probably no member of the society at the present time is more conversant than I with the arduous duties of the secretary and the onerous demands upon his time, not only at the time of the meeting, but for months succeeding it, during which time he is required to publish the transactions. I know of the weary hours of reading proof until two or three o'clock in the morning to keep up with the printer the next day, and I know that the secretary is well worthy of the small emolument which the society votes to

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him annually, and I take pleasure in moving than an honorarium of $250 be given the secretary, and that an honorarium of $100 be given the treasurer for their duties the current year. Seconded.

DR. CONNOR: I would like to ask whether our finances leave us in a position to pay that amount. I have not heard the report of the finance committee.

THE VICE-PRESIDENT: The finance committee have made no report. We have called for it twice but have had no response. What is your pleasure in regard to Dr. Hitchcock's motion?

DR. HITCHCOCK: The treasurer's report shows that the finances of the society are in excellent condition.

Motion was then put and carried.

DR. HITCHCOCK: There are three amendments pending. We have disposed of one of them and we ought to take action on the other two at this meeting so as not to needlessly carry them along from year to year. The first is an amendment to add to article III, section 5 of the by laws: "All objections to or charges against candidates for membership made previous to the report of the committee shall be made in writing and filed with the committee on admissions, said objections or charges becoming the property of said committee and their successors in office." I will briefly state the origin of this amendment. The committee on admissions at this and other meetings have been embarrassed by oral charges or objections made against candidates, the member making them disappearing and the committee not being able to finish or to substantiate the charges when the member comes before the committee. It is a rational procedure and we should help the committee on admissions. I therefore move the adoption of the amendment. Seconded and carried.

DR. HITCHCOCK: There is also an amendment to strike out article VI, section 4 of the by-laws, which reads: "At the election of officers of the various sections of this society no member shall be entitled to vote who has not paid his dues for the meeting of the society then in session; nor shall any member be entitled to vote for officers in more than one

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section at any annual meeting." To bring it to a vote I move the adoption of the amendment. Seconded.

DR. HITCHCOCK (resuming): I would lik to say a word or two on this amendment. The requirement is reasonable that a member shall pay his dues before voting. It is helpful to the treasurer of the society. Heretofore there was a good deal of trouble from members who came to the meetings, who enjoyed all the privileges of membership in the general sessions and in the sections, and then they would go home without paying their dues, and through carelessness would often fail to respond to the reminders of the secretary and treasurer for payment of their dues. No member should vote for section officers in more than one section. I hope the amendment will pass.

DR. MACLEAN: A motion to indefinitely postpone the amendment would be proper. First of all, such a motion is not debatable, and secondly, it finally disposes of the matter. The chances are not one in a million that it will be heard of again. I therefore move that action on the amendment to strike out the article referred to be indefinitely postponed. Carried.

The secretary read a communication from the Michigan Barbers Association but no disposition was made of it.

At this juncture Vice-President Novy took the chair and called for the report of the committee on nominations, which was read by Dr. Shurly as follows:

VOTE FOR PRESIDENT.

Dr. Hugh McColl, of Lapeer	94
Dr. C. T. Southworth, of Monroe	17
Dr. J. H. Carstens, of Detroit	2
Dr. W. T. Dodge, of Big Rapids	4
Dr. P. D. Patterson, of Charlotte	1
Total	116

VOTE FOR SECRETARY.

Dr. Collins H. Johnston, of Grand Rapids	93
Dr. Reuben Peterson, of Grand Rapids	2
Dr. F. B. Tibbals	1
Blank	3
Total	99

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On motion the report was adopted and Dr. Hugh McColl was declared president for the ensuing year, Dr. C. T. Southworth, first vice-president, and Dr. Collins H. Johnston, secretary.

A committee consisting of Drs. Herdman, Shurly and Connor were appointed to escort the president-elect to the chair.

The president-elect, Dr. McColl, was received with applause. He said:

Members of the Michigan State Medical Society:

I thank you for this expression of your good will towards me in electing me as your president for the ensuing year. I have been a member of this society for twenty-three years; I have attended most of its meetings, and have met with nothing but the utmost cordiality from every member. The friendships formed in connection with this society are the warmest of my life, and are the strongest of my life. There is no friendship that I prize so highly as the friendship of those that are engaged in the same work as myself. I have devoted my whole life to the profession unreservedly, and I have lived in peace and harmony with the medical profession wherever I have been, and have had their kind regards and help everywhere. That is the kind of friendship that I esteem most highly of all friendships—the friendship of those who know me, who know what I have been doing and how I have treated them. And it is always for the benefit not only of the profession, but for the benefit of humanity at large that physicians should live together in harmony and peace and strengthen the bonds between themselves, as well as with the community at large. I again thank you for this cordial manifestation of your kindness. (Applause.)

The secretary, Dr. Johnston, who was re-elected, was called on for a speech, but in lieu of it read the report of the committee appointed yesterday to introduce a proposed amendment to the by-laws regarding the election of members to the society, which is as follows:

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Mr. President and Members of the Michigan State Medical Society:

Your committee would recommend the following changes in the constitution and by-laws with regard to the election of members to the society: Section 1 of article II, of the constitution, to be made to read as follows:

"All physicians in the State of Michigan who are in good standing, and who subscribe to the code of ethics of this society, may become resident members upon paying the initiation fee and annual dues, and declaring their adherence to the constitution and by-laws; provided that every candidate for membership shall make a formal application therefor, and that this application shall have been approved in writing by two members of this society in good standing. The candidates application shall then be transmitted through the secretary to the chairman of the committee on admissions for final action."

That section 5 of article III, of the by-laws, be made to read as follows:

"It shall be the duty of the committee on admissions, upon receiving the application of candidates for membership, to make due inquiry, and, if found worthy, to elect such candidates to membership. All elections must be by unanimous vote of the committee. At each regular meeting of the society the names of all members admitted during the year, immediately preceding such meeting, shall be reported to the society by the committee. Should the committee fail to report upon nominations submitted to them, any member having made such nomination may renew the same directly to the society, in which case a vote of four-fifths of the members present shall be requisite to constitute an election."

That section 2 of article IV, of the by-laws, be made to read as follows:

"Every applicant shall transmit to the secretary, with his application, the membership fee and annual dues which, in case of rejection, shall be returned, nor shall he or she be entitled to the rights of membership until the same is done."

All of which is respectfully submitted,

COLLINS H. JOHNSTON.
CHAS. T SOUTHWORTH.
Wm. T. DODGE.

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Laid over for one year.

DR. CONNOR: I desire to give notice that next year I intend to move for the appointment of a committee to consider the propriety and wisdom of publishing the work of this society in a medical journal controlled by itself. The reason I give this notice now is with the hope that the gentlemen with their friends will consider the matter between now and that time, and decide as to whether it is advisable to have such a committee or not. As you know, there is some work and responsibility connected with it, and at the present time our state medical journals do not fill the entire field, and possibly it may be thought advisable for us to occupy such a field. The state society of Arkansas has done the same thing with a good deal of success and satisfaction to all its friends for many years. The idea occurred to me in connection with the movement to establish a central place of meeting, that this would be a far more important proposition than that one. We want something oftener than once a year. We want a medical journal that comes to us at least once a month, and with the immense amount of material we have and the excellent ability of members within the society itself for the conduct of such an enterprise, I trust it will be thought over; and so I give notice that I shall propose it next year.

Dr. W. F. Breakey, offered the following amendment to section 2 of article V, of the constitution: "The reading of papers in sections shall be limited to the maximum of twenty minutes, and individual discussions to five minutes."

Laid over for one year.

The secretary read a communication from the world's congress of medico-climatology asking that the society appoint five delegates to attend the meetings of the world's congress of medico-climatology, the next session of which will probably be held in New Orleans in November, 1896.

On motion, the communication was referred to the president with power to act.

The following were later appointed delegates to the congress:

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WM. J. HERDMAN, Ann Arbor.
J. H. KELLOGG, Battle Creek.
E. S. PETTYJOHN, Alma.
C. W. HITCHCOCK, Detroit.
GEORGE DOCK, Ann Arbor.

The secretary read a communication from the president of the New York State Medical Society suggesting the appointment of three delegates and three alternates to attend a conference some time during the ensuing year to consider the advisability of establishing a national medical legislation committee to meet at Washington during the sessions of congress for the purpose of assisting in the passage of important legislation relative to the public health and the medical profession.

On motion of Dr. Carstens, it was referred to the president with power to act.

The president later appointed the following delegates:

J. H. CARSTENS, Detroit.
V. C. VAUGHAN, Ann Arbor.
C. B. BURR, Flint.

Alternates:

GEO. E. RANNEY, Lansing.
A. E. BULSON, Jackson.
L. W. BLISS, Saginaw.

The following telegram was read by the secretary:

FLINT, MICH., June 4, 1896.

Dr. Collins H. Johnston, Secretary State Medical Society:

Regret that I cannot be with you, and best wishes. Please extend to the members of the society a cordial invitation to the opening of Noyes' Amusement Hall, Oak Grove Hospital, Flint, afternoon of June 10th.

C. B. BURR.

The secretary read a communication from Dr. George M. Sternberg in regard to vivisection.

DR. CARSTENS: I move that this society endorse the resolutions introduced and adopted by the American Medical Association regarding this matter, and that the secretary be instructed to send a copy of the resolutions to each member

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of congress and each senator from our state. Seconded and unanimously carried.

DR. LEONARD: I move that a vote of thanks be extended to the executive and entertainment committees for their efficient work, and also to the trustees of this church.

Seconded by Dr. Shurly and carried.

The president appointed the following committees:

To formulate plans of affiliation of the Michigan State Medical Society with the local medical societies of the state:

LEARTUS CONNOR, Detroit.
G. K. JOHNSON, Grand Rapids.
H. D. THOMASON, Albion.
R. LEBARON, Pontiac.
A. M. HUME, Owosso.

On program for 1897:

HUGH McCOLL, Lapeer, (ex-officio).
COLLINS H. JOHNSTON, Grand Rapids, (ex-officio).
FREDERICK W. ROBBINS, Detroit.
ALBERT E. BULSON, Jackson.
CHARLES W. HITCHCOCK, Detroit.
ANDREW P. BIDDLE, Detroit.
N. W. WEBBER, Detroit.
JOSEPH B. WHINNERY, Grand Rapids.

There being no further business the society, on motion, adjourned.

During the session the following were recommended by the committee on admissions, elected to full membership and qualified:

Abbott, A. J., Emmett.
Baird, Robert B., Marine City.
Banting, W. T., Lexington.
Black, D. K., Greenville
Brownell, Wm. S., Rochester.
Brown, G. V., McBain.
Burdon, Fred L., New Baltimore.
Chapman, Willis E., Cheboygan.
Croman, Joseph M., Mt. Clemens.
Dewey, F. N., Plymouth.
Dibble, Wealthy, Saginaw, E. S.
Farrand, Elizabeth M., Port Huron.
Fares, John B., Romeo.
Gates, W. C., Rockland.
Gibson, James C., New Haven.
Goux, Louis J., Pontiac.
Gunn, Alexander, New Haven.
Haze, H. A., Lansing.
Howard, S. A., Upton Works.
Hueston, James, Ypsilanti.
Inches, James W., St. Clair.
Insley, S. N., Grayling.
Jensen, Paul C., Manistee.
Johnston, Robert, Milford.
Knapp, Lewis C., Monroe.
Knill, Edwin G., Detrolt.
Maas, F., Detroit.
MacMillan, J. A., Detroit.

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Marker, John J., Eloise.
Niles, H. R., Flint.
Olsen, Alfred B., Battle Creek.
Planck, Edgar A., Union.
Roberts, A. J., Jackson.
Roberson, George G., Utica.
Schoales, Wm. L., St. Clair.
Statler, H. O., Ann Arbor.
Stevens, Samuel, Keeler.
Tinker, F. A., Lapeer.
Warren, A. J., Mt. Clemens.
Warthin, Aldred S., Ann Arbor.
White, John V., Oscoda.
Wilson, W. D., Mt. Clemens.
Williamson, T. M., Saginaw, E. S.
Wolfe, Franklin E., Grayling.
Yates, O. E., Holland.
Zimmerman, S., Wayne.

The following were elected to membership, but forfeited it through non-payment of dues:

Greene, C. E., Riley Center.
Jones, J. H., Dowagiac.
McHugh, F. J. J., Detroit.
Schulte, Caspar L., Detroit.

The following were reinstated to membership:

Berry, H. G., Romeo.
Conley, E., Columbiaville.

COLLINS H. JOHNSTON,
General Secretary

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CONSTITUTION AND BY-LAWS

OF THE

MICHIGAN STATE MEDICAL SOCIETY.

CONSTITUTION.

1896.

ARTICLE I.

This association shall be called the " Michigan State Medical Society," and shall be composed of resident, honorary, and corresponding members.

SECTION 1. The society shall constantly have in view:

1. The association of the profession for the purpose of mutual recognition and fellowship.

2. The maintenance of union, harmony and good government among its members, thereby promoting the character, interest, honor and usefulness of the profession.

3. The cultivation and advancement of medical science, and of medical literature, and the elevation of the standard of professional education.

ARTICLE II—MEMBERS.

SECTION 1. The resident members shall be regular practitioners of medicine and surgery in the state of Michigan, who shall be elected by vote of a majority at any regular meeting, their eligibility having been previously reported upon by the committee on admissions.

SEC. 2. Honorary members shall only be admitted by a vote of two-thirds of the members present at the regular meeting, having been first recommended by the committee on admissions. The whole number of honorary members shall not exceed one hundred.

SEC. 3. Corresponding members may be non-residents of Michigan, and shall be elected by a two-thirds vote at any

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regular meeting, having been first recommended by the committee on admissions.

ARTICLE III—OFFICERS.

SECTION 1. The officers of this society shall be a president, four vice-presidents, a recording secretary, and a treasurer, all of whom shall be elected annually.

SEC. 2. The president, first vice-president, and recording secretary shall be elected by ballot in a manner as hereinafter provided. The second, third and fourth vice-presidents and treasurer shall be nominated by the committee on nominations.

SEC. 3. There shall be two ballots cast by each voter, which shall be folded separately; upon one shall be written "president," and the name chosen by the voter for that office; upon the other, "secretary," and the name chosen by the voter for that office.

SEC. 4. There shall be a locked ballot box which shall be in the custody of the committee on nominations, and shall be placed in or about the lobby of the hall where the general sessions are held, and shall be kept there for the reception of ballots during each general session. One or more of the committee on nominations shall receive the ballots and deposit the same in the box, at the same time checking the name of the voter from the registered list of those entitled to vote, which list shall have been furnished by the secretary and treasurer; but the name of no member shall be placed upon the list until his dues are paid in full.

SEC. 5. The polls shall close at 12 o'clock, noon, on the last day of the session, at which time the committee on nominations will open the ballot box, and at once proceed to canvass the vote and report the result to the meeting.

SEC. 6. The person receiving the largest number of votes on the presidential ticket shall be declared president. The person receiving the next largest number of votes shall be declared first vice-president. The ballots for secretary shall likewise be canvassed, and the person receiving the largest number of votes shall be declared secretary.

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SEC. 7. In the event of a tie vote on the presidential office, the presiding officer shall submit the names of the candidates in alphabetical order to the viva voce vote of the meeting, and the one receiving the greatest number of votes shall be declared president, and the one receiving the next highest number shall be declared first vice-president.

SEC. 8. The same course shall be pursued in the event of a tie vote for secretary.

SEC. 9. Nominations for president and secretary shall be made the first order of miscellaneous business at the general session on the morning of the first day of the annual meeting. Under no other circumstances shall nominations or announcements of candidates be made in open session.

ARTICLE IV—STANDING COMMITTEES.

SECTION 1. The following standing committees shall be annually appointed by the president, and shall each consist of five members: 1st, an executive committee; 2d, a committee on finance; 3d, on publication; 4th, on admissions; 5th, on necrology; 6th, on nominations.

ARTICLE V—DIVISION INTO SECTIONS.

SECTION 1. To facilitate professional and scientific work three sections are established, namely:

First, A section on medicine and obstetrics.

Second, A section on surgery and ophthalmology.

Third, A section on abdominal surgery and gynæcology.

SEC. 2. These sections shall hold their meetings in the afternoon, and the society shall meet in general executive session in the forenoon of each day. At each annual meeting a chairman shall be chosen for each section, who shall serve for one year. A secretary shall be chosen every second year, and he shall serve for two years, and until his successor shall be elected. All papers, communications and matters of a technicle or professional nature shall be referred to the section to which they pertain: *Provided, however*, that any such paper or subject may, on vote, be considered in general session.

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SEC. 3. Each section shall annually elect a member whose duty it shall be at the next annual meeting to deliver an address before the society in general session upon some subject pertaining to the department by which he is chosen.

ARTICLE VI—JUDICIAL COUNCIL.

SECTION 1. A council, consisting of nine members, shall be elected by ballot, whose duty it shall be to take cognizance of and decide all questions of an ethical or judicial character that may arise in connection with the society. Of the nine members of the council first elected the three first named on the list shall hold office for one year, the second for two years, and the remainder for three years. With these exceptions the term of office of members of the council shall be three years, three being elected annually.

SEC. 2. The said council shall organize by choosing a president and secretary, and shall keep a permanent record of its proceedings. The decisions of said council on all matters referred to it by the society shall be final, and shall be reported to the society at the earliest practicable moment.

SEC. 3 All questions of a personal character, including complaints and protests, and all questions on credentials shall, after the report of the committee on admissions or other presentation, be referred at once to the judicial council and without discussion.

ARTICLE VII—AMENDMENTS.

SECTION 1. A proposed addition or amendment to this constitution shall be presented in writing, and shall lie on the table for one year, and if approved by two-thirds of the members present at a regular meeting it shall be declared adopted.

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BY-LAWS.

ARTICLE I—MEETINGS.

SECTION 1. The regular meetings of the society shall be held annually at such time and place as the society may, from time to time, determine.

SEC. 2. At all meetings the presence of fifteen resident members shall be necessary to constitute a quorum.

ARTICLE II—DUTIES OF OFFICERS.

SECTION 1. The president shall preside, enforce a due observance of the constitution and by-laws, see that all members of committees and officers perform their respective duties, appoint all committees not otherwise provided for, give the casting vote only, sign diplomas and all other official documents requiring his signature, and perform such other duties as appertain to his office by usage and custom; also when in his opinion the interests of the society may be advanced, he is authorized to appoint delegates to representation in other state medical societies. All vacancies in office shall be filled *ad interim* by the president.

SEC. 2. The vice-presidents shall assist the president in the performance of his duties, and in his absence shall preside in order of seniority—rank being determined by the order of their election.

SEC. 3. The recording secretary shall keep the minutes, prepare the records of the society for publication, receive the signature and initiation fee of newly elected members, and do such other business as shall be required, or as the society may from time to time direct, in his department.

SEC. 4. The treasurer shall receive all monies due the society, and pay all bills endorsed by the finance committee and countersigned by the president, keeping correct accounts of the same, and making a full and detailed account at the annual meeting.

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ARTICLE III—STANDING COMMITTEES.

SECTION 1. Standing committees shall keep regular minutes of their proceedings.

SEC. 2. The executive committee shall digest and prepare the business of each meeting, provide suitable rooms for the purposes of the society, recommend plans for the promotion of its objects, and in all things protect and superintend the general interests of the society.

SEC. 3. The committee on finance shall superintend the monetary affairs of the society, inspect and audit all bills and the accounts of the treasurer, and make such an assessment by a *pro rata* tax upon the resident members as may be necessary for the incidental expenses, which, however, shall not exceed the sum of two dollars per annum.

SEC. 4. The committee on publication, consisting of the secretaries of the respective sections, together with the recording secretary and one member appointed by the president, shall superintend the printing of such papers as may be ordered to be published, so that they may be issued upon uniform paper, under the title of "Transactions." And in the performance of their duties they are authorized to withhold from publication any papers, or parts of papers, that in their judgment will not promote the reputation and best interests of this society; and all papers once submitted by their authors for publication, whether read or not read, shall be deemed the property of the society, and shall not be withdrawn except with the consent of the committee.

SEC. 5. It shall be the duty of the committee on Admissions, upon receiving the names of the candidates for membership, to make due inquiry, and report such as may be found worthy to the society, which may thereupon elect them. Should the committee fail to report upon nominations submitted to them, any member having made such nomination may renew the same directly to the society, in which case a vote of four-fifths of the members present shall be requisite to constitute an election. All objections to or charges against candidates for membership, made previous to the report of the committee, shall be made in writing and filed with the

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committee on admissions, said objections or charges becoming the property of said committee and their successors in office.

SEC. 6. It shall be the duty of the nominating committee to nominate candidates for the offices of second, third, and fourth vice-presidents, and treasurer, and select the place of meeting; also perform the duties prescribed in article III, sections two, three, four, five and six.

ARTICLE IV—DUTIES OF MEMBERS.

SECTION 1. Any resident member vacating his membership shall thereby be divested of any right or title to any portion of the funds or other property of the society.

SEC. 2. Every applicant for membership shall present to the secretary his or her application duly signed, together with receipts from the treasurer for his or her membership fee and annnal dues, which in case of rejection will be returned, sign the constitution and by-laws; nor shall he or she be entitled to the rights of membership until the same is done.

SEC. 3. Membership dues shall be $3 per annum, and shall be payable annually. The failure of any member to pay such dues for two successive years shall be reported by the secretary of the society; and a failure for three successive years to pay such dues shall also be in a like manner reported, and the membership of such delinquent shall be declared forfeited and lost. Such person may be reinstated to membership by following the prescribed course for admission, after payment of previous indebtedness to the treasurer.

ARTICLE V—REGARDING THE DISPOSAL OF PAPERS.

SECTION 1. Papers read before this society, and referred to the committee on publication with instructions to publish, shall be placed in the hands of the secretary at once, or within two weeks, ready for printing; otherwise they will not appear in the society's transactions.

SEC. 2. Any member reading a paper before the society is allowed to have the paper printed in any reputable medical journal, under the statement, viz.: "Read before the Michigan State Medical Society."

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ARTICLE VI—MISCELLANEOUS.

SECTION 1. These by-laws may be suspended by a two-thirds vote at any regular meeting, and they may be repealed or amended by a similar vote, notice of the same having been given in writing at any previous meeting.

SEC. 2. As the American Medical Association requires that this society shall endorse all district, county, city, or town medical societies before they can be represented in said Association, in order to receive such endorsement by this society, they shall file in the office of the secretary of this society copies of their constitutions, by-laws or resolutions, showing that they have adopted the code of ethics of the American Medical Association.

SEC. 3. Rules of order and all questions arising upon the same shall be determined by parliamentary rules and the code of ethics of the American Medical Association.

SEC. 4. At the election of officers of the various sections of this society no member shall be entitled to vote who has not paid his dues for the meeting of the society then in session; nor shall any member be entitled to vote for officers in more than one section at any annual meeting.

AMENDMENTS PENDING.

Offered by Wm. F. Breakey:

To add to section 2, of article V, of the by-laws: "The reading of papers in sections shall be limited to the maximum of twenty minutes, and individual discussions to five minutes."

Offered by Donald Maclean:

To insert the word vice-president in section 9, of article III, of the constitution, so that it will read: "Nominations for president, *vice-president* and secretary shall be made the first order of miscellaneous business, etc."

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Offered by Chas. W. Hitchcock:

To amend section 1, of article V, of the constitution so that it shall read:

ARTICLE V—DIVISION INTO SECTIONS.

Section 1. To facilitate professional and scientific work three sections are established, namely:

First, A section on general medicine.

Second, A section on surgery and ophthalmology.

Third, A section on obstetrics and gynecology.

Offered by Drs. Johnston, Southworth and W. T. Dodge:

That section 1, of article II, of the constitution, be made to read as follows:

"All physicians in the State of Michigan who are in good standing, and who subscribe to the code of ethics of this society, may become resident members upon paying the initiation fee and annual dues, and declaring their adherence to the constitution and by-laws; provided that every candidate for membership shall make a formal application therefor, and that this application shall have been approved in writing by two members of this society in good standing. The candidate's application shall then be transmitted through the secretary to the chairman of the committee on admissions for final action."

That section 5, of article III, of the by-laws, be made to read as follows:

"It shall be the duty of the committee on admissions, upon receiving the application of candidates for membership, to make due inquiry, and, if found worthy, to elect such candidates to membership. All elections must be by unanimous vote of the committee. At each regular meeting of the society the names of all members admitted during the year, immediately preceding such meeting, shall be reported to the society by the committee. Should the committee fail to report upon nominations submitted to them, any member having made such nomination may renew the same directly to the society, in which case a vote of four-fifths of the members present shall be requisite to constitute an election. All

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objections to or charges against candidates for membership, made previous to the report of the committee, shall be made in writing and filed with the committee on admissions; said objections or charges becoming the property of said committee and their successors in office."

That section 2, of article IV, of the by-laws, be made to read as follows:

"Every applicant shall transmit to the secretary, with his application, the membership fee and annual dues which, in case of rejection, shall be returned; nor shall he or she be entitled to the rights of membership until the same is done."

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PRESIDENTS AND VICE-PRESIDENTS

SINCE THE ORGANIZATION OF THE SOCIETY.

1866

President—
C. M. STOCKWELL.
Vice-Presidents—
A. PLATT,
J. H. JEROME,
J. H. BEECH,
E. J. BONNINE.

1867

President—
J. H. JEROME.
Vice-Presidents—
CHAS. SHEPARD,
S. G. ARMOR,
I. H. BARTHOLOMEW,
ALBERT E. LEETE.

1868

President—
WM. H. DECAMP.
Vice-Presidents—
J. C. WILSON,
RICHARD INGLIS,
ALANSON CORNELL,
CHAS. T. SOUTHWORTH.

1869

President—
RICHARD INGLIS.
Vice-Presidents—
CHAS. T. SOUTHWORTH,
A. W. ALVORD,
WM. R. MARSH,
WM. R. BROWNELL.

1870

President—
I. H. BARTHOLOMEW.
Vice-Presidents—
WM. BRODIE,
MOSES PORTER,
WM PARMENTER,
H. B BARNES.

1871

President—
H. O. HITCHCOCK.
Vice-Presidents—
LENORA FOSTER,
L. W. BLISS,
LEWIS M. FASQUELLE,
B. BARNUM.

1872

President—
A. B. PALMER.
Vice-Presidents—
JOHN R. WHITE,
WM. PARMENTER,
E. AMSDEN,
JAMES F. NOYES.

1873

President—
E. W. JENKS.
Vice-Presidents—
E. P. CHRISTIAN,
H. P. LANDON,
L. S. STEVENS,
F. A. RUTHERFORD.

1874

President—
R. C. KEDZIE.
Vice-Presidents—
J. H. BEECH,
J. ANDREWS,
N. W. WEBBER,
A. B CHAPIN.

1875

President—
WM. BRODIE.
Vice-Presidents—
I. A. BROWN,
G. E. FROTHINGHAM,
H. B. SHANK,
C. W. BACKUS.

1876

President—
ABRAM SAGER.
Vice-Presidents—
FOSTER PRATT,
EUGENE SMITH,
WM. PARMENTER,
GEORGE K. JOHNSON.

1877

President—
FOSTER PRATT.
Vice-Presidents—
J. B. WHITE,
T. A. McGRAW,
H. B. BARNES,
T. H. BRIGGS.

1878

President—
EDWARD COX.
Vice-Presidents—
A. F. WHELAN,
J. R. THOMAS,
G. S. BANKS,
E. B. DUNNING.

1879

President—
GEORGE K. JOHNSON.
Vice-Presidents—
J. R. THOMAS,
D. O. FARRAND,
WM. F. BREAKEY,
E. S. SNOW.

1880

President—
J. R. THOMAS.
Vice-Presidents—
E. P. CHRISTIAN,
J. W. HAGADORN,
C. J. LUNDY,
J. H. BENNETT.

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1881

President—
J. H. JEROME.
Vice-Presidents—
WM. F. BREAKEY,
A. F. KINNE,
S. S. FRENCH,
D. W. C. WADE.

1882

President—
G. W. TOPPING.
Vice-Presidents—
S. S. FRENCH,
HUGH McCOLL,
L. W. BLISS,
A. M. STEVENSON.

1883

President—
A F. WHELAN.
Vice Presidents—
HORACE TUPPER,
L. C. HAMILTON,
H. B. BARNES,
A. KAISER.

1884

President—
DONALD MACLEAN,
Vice-Presidents—
J. PERKINS,
J. M. COOK,
GORDON CHITTOCK,
CARL BRUMME

1885

President—
E. P. CHRISTIAN.
Vice-Presidents—
P. D. PATTERSON,
J. B. GRISWOLD,
J. H. CARSTENS,
A. W. ALVORD,

1886

President—
CHAS. SHEPARD.
Vice-Presidents—
J. P. STODDARD,
H. O WALKER,
C. T. NEWKIRK,
H. B. HEMENWAY.

1887

President—
T. A. McGRAW.
Vice-Presidents—
C. V. TYLER,
W. J. HERDMAN,
G. L. ROSE,
F. J. GRONER.

1888

President—
S. S. FRENCH.
Vice-Presidents—
C. H LEWIS.
E. B. WARD,
S. BELKNAP

1889

President—
G. E. FROTHINGHAM.
Vice-Presidents—
J. M SNOOK,
H. F. LYSTER,
E. W. DAVIS,
G. D. CARNES.

1890

President—
L. W. BLISS.
Vice-Presidents—
H. B. BAKER,
D. E. WELSH,
FLORENCE HUSON,
E. T. TAPPEY.

1891

President—
GEO. E. RANNEY.
Vice-Presidents—
J. B. GRISWOLD,
A. E. CARRIER,
A. F. HAGADORN,
G. V. VOORHEES.

1892

President—
CHAS. J. LUNDY.
Vice-Presidents—
G V. CHAMBERLAIN,
F. A. RUTHERFORD,
BENJ. P. BRODIE,
JNO. L. BURKART.

1893

President—
EUGENE BOISE.
Vice-Presidents—
A. H. KIMBALL,
C. T. SOUTHWORTH,
F. A. TOWSLEY,
J M. COOK.

1894

President—
HENRY O. WALKER.
Vice-Presidents—
VICTOR C. VAUGHAN,
C. H. WHITE
MINA LOGUE,
C. H. McKAIN.

1895

President—
VICTOR C. VAUGHAN.
Vice-Presidents—
HUGH McCOLL,
R. W. ERWIN,
F. B. TIBBALS,
F. G. NOVY.

1896

President—
HUGH McCOLL,
Vice-Presidents—
C. T. SOUTHWORTH,
A. B. CHAPIN,
DELLA PIERCE,
CARL BONNING.

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HONORARY MEMBERS.

1896.

GEORGE P. ANDREWS ..... Honolulu, Hawaiian Islands.
N. S. DAVIS ..... Chicago, Ill.
JOSEPH EASTMAN ..... Indianapolis, Ind.
JOHANN FLINTERMANN ..... Detroit, Mich.
WM. H. HINGSTON ..... Montreal, Quebec.
THOMAS HOBLEY ..... Amherstburg, Ont.
HENRY M. HURD ..... Baltimore, Md.
W. W. JONES ..... Toledo, Ohio.
H. M. LYMAN ..... Chicago, Ill.
WALTER H. MOORHOUSE ..... London, Ont.
JAMES E. NIELD ..... Melbourne, Australia.
JOHN H. OUCHTERLONY ..... Louisville, Ky.
FRED B. ROBINSON ..... Chicago, Ill.
A. LAPTHORN SMITH ..... Montreal, Quebec.
H. R. TILTON, U. S. A ..... St. Paul, Minn.
WM N. WISHARD ..... Indianapolis, Ind.

CORRESPONDING MEMBERS.

JOHN BOICE ..... Denver, Col.
H. B. HEMENWAY ..... Evanston, Ill.
GEORGE A. HENDRICKS ..... Minneapolis, Minn.
G. V. HILTON ..... Woodlawn Park, Ill.
J. B. W. LANSING ..... Tenafly, N. J.
A. B. LYON ..... Honolulu, Hawaiian Islands.
JAMES F. W. ROSS ..... Toronto, Ont.
CHAS. N. SMITH ..... Toledo, Ohio.
T. J. SULLIVAN ..... Chicago, Ill.
GEO. W. MAHONEY ..... Chicago, Ill.

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ACTIVE MEMBERS

OF THE

MICHIGAN STATE MEDICAL SOCIETY.

LIST BY COUNTIES.

1896.

ALLEGAN COUNTY.

Year Joined		Residence	Year Joined		Residence
1884	Nichols, G. B.,	*Martin*	1893	Rowe, W. E.,	*Allegan*
1883	Stuch, L. F.,	*Allegan*			

ANTRIM COUNTY.

1890	Johnson, Cornelius A.,	*Mancelona*

ARENAC COUNTY.

1884	Abbott, F. E.,	*Sterling*	1895	‡Grigg, Arthur,	*Standish*

BARRY COUNTY.

1871	Drake, A. P.,	*Hastings*	1886	Lowry, G. W.,	*Hastings*
1894	‡Fuller, D. E.,	"	1877	‡McLeay, D.,	*Prairieville*
1874	‡Young, W. H.,	*Nashville*			

BAY COUNTY.

1895	‡Baird, Thomas A.,	*Bay City*	1895	Klingmann, T. C.,	*Bay City*
1888	‡Baker, C. H.,	"	1895	Landon, H. B.,	"
1895	Bristol, Miles C.,	"	1895	‡McLurg, John,	"
1891	‡Caughlin, J. W.,	"	1891	McTavish, D. A.,	*W. Bay City*
1881	Erwin, Robert W.,	"	1886	Minar, E. G.,	*Bay City*
1895	Foote, John R.,	"	1881	Newkirk, C. T.,	"
1895	Gallagher, M.,	"	1873	‡Randall, I. E.,	*W. Bay City*
1890	Granger, G H.,	"	1894	Ruggles, F. E.,	*Bay City*
1881	‡Hagadorn, A. F.,	"	1881	‡Stone, D. F.,	"
1895	Hauxhurst, J. W.,	*W. Bay City*	1895	Sutherland, E. D.,	"
1895	Kerr, William,	*Bay City*	1866	Tupper, H.,	"

BENZIE COUNTY.

1893	Kinne, Hudson J.,	*Frankfort*

‡ Present.

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BERRIEN COUNTY.

Year Joined		Residence
1890	Beers, Jno. S.,	*Derby*

BRANCH COUNTY.

Year Joined		Residence
1891	‡Marsh, Wm. C.,	*Quincy*
1888	‡Voorhees, G. V.,	*Coldwater*
1884	Wood, D. H.,	*Coldwater*

CALHOUN COUNTY.

Year Joined		Residence
1868	Alvord, A. W.,	*Battle Creek*
1871	Briggs, T. H.,	"
1892	Bryant, Ruth O.,	"
1890	Dunlap, H. M.,	"
1892	Fox, Paul S.,	*Athens*
1877	*French, S. S.,	*Battle Creek*
1890	Gillette, Leon M.,	"
1886	Greene, G. H.	*Marshall*
1877	‡Kellogg, J. H.,	*Battle Creek*
1878	Lindsay, Kate,	"
1892	McCullom, Emma,	"
1892	Miller, Eugene,	"
1896	‡Olsen, Alfred B.,	"
1895	‡Parmeter, Ed. L.,	*Albion*
1895	Riley, W. H.,	*Battle Creek*
1890	Sands, T. E.,	"
1866	Thomason, H. D.,	*Albion*

CASS COUNTY.

Year Joined		Residence
1896	‡Planck, Edgar A.,	*Union*
1889	Shellito, Fred.,	*Marcellus*
1889	Tompkins, L. D.,	*Cassopolis*
1889	White, M. P.,	*Dowagiac*

CHEBOYGAN COUNTY.

Year Joined		Residence
1896	‡Chapman, Willis E.,	*Cheboygan*

CHIPPEWA COUNTY.

Year Joined		Residence
1895	Lang, A. B.,	*Sault Ste. Marie*

CLINTON COUNTY.

Year Joined		Residence
1876	Campbell, O. B.,	*Ovid*
1895	Martin, F. W.,	*Westphalia*
1892	‡Pollard, John W.,	*St. Johns*
1894	‡Schemer, Ernest,	*Fowler*
1881	‡Taylor, James E.,	*Ovid*
1891	Weller, Martin,	*St. Johns*

CRAWFORD COUNTY.

Year Joined		Residence
1896	‡Insley, S. N.,	*Grayling*
1896	‡Wolfe, Franklin E.,	*Grayling*

EATON COUNTY.

Year Joined		Residence
1894	Allen, G. B.,	*Charlotte*
1887	Bradley, J. B.,	*Eaton Rapids*
1894	Carr, Henrietta A.,	"
1889	‡Green, Mary E.,	*Charlotte*
1887	Hull, Tyler,	*Dimondale*
1894	Newark, W. E.,	*Charlotte*
1894	Palmer, E. C.,	"
1876	‡Patterson, P. D.,	"
1894	‡Stealey, A. R.,	*Charlotte*
1894	Stimson, C. A.,	*Eaton Rapids*
1890	Swaney, H. N.,	*Grand Ledge*
1882	Walter, H.,	*Eaton Rapids*
1882	Weaver, F. A.,	*Charlotte*
1895	Williams, Mary A. W.,	*Eaton Rapids*
1894	‡Wilson, W. E.,	*Grand Ledge*

‡ Present. * Ex-President.

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EMMET COUNTY.

Year Joined		Residence
1891	Calkins, Henry T.,	*Petoskey*
1884	Oven, A. G.,	*Petoskey*
1891	Dowse, C. Louise,	*Petoskey*

GENESEE COUNTY.

1891	‡Beagle, Luke N.,	*Flint*
1892	Buckham, James M.,	"
1878	Burr, C. B.,	"
1895	Callow, F. H.,	*Mt. Morris*
1885	‡Chamberlain, G. V.,	*Flint*
1890	Gardner, E. D.,	*Davison*
1894	Graham, H. W.,	*Mt. Morris*
1890	Ingram, A. R.,	*Argentine*
1891	Willson, Jas. C.	*Flint*
1892	Laing, John B.,	*Otisville*
1892	Locy, Lorenzo J.,	*Davison*
1896	‡Niles, H. R.,	*Flint*
1894	‡Strangways, W. F.,	"
1892	Taylor, Philander B.,	*Clio*
1885	Tibbetts, M. A.,	*Linden*
1892	Warren, Wadsworth,	*Flint*
1891	Wheeler, Chas. S.,	*Flushing*

GLADWIN COUNTY.

1891	Suylandt, Chas. G.,	*Gladwin*

GRAND TRAVERSE COUNTY.

1875	Munson, J. D.,	*Traverse City*

GRATIOT COUNTY.

1891	Brainerd, Ira N.,	*Alma*
1893	‡Pettyjohn, Elmore S.,	*Alma*

HILLSDALE COUNTY.

1890	Gier, F. M.,	*Hillsdale*
1895	‡Sawyer, Walter H.,	*Hillsdale*
1890	Moore, E. E.,	*Hillsdale*

HOUGHTON COUNTY.

1895	Fletcher, F. E.,	*Lake Linden*
1883	Simonson, A. B.,	*Calumet*

HURON COUNTY.

1891	Ludlum, Stephen S.,	*Bad Axe*
1885	McDonnell, M. C.,	*Bad Axe*

INGHAM COUNTY.

1870	‡Baker, H. B.,	*Lansing*
1878	Ballard, L. Anna,	"
1890	‡Campbell, J. F.,	"
1894	Culver, Sidney H.,	*Mason*
1890	‡Greene, J. N.,	*Leslie*
1875	‡Hagadorn, A. D.,	*Lansing*
1896	‡Haze, H. A.,	"
1873	Hayden, Chas. N.,	"
1894	Wilbur, C. L.,	*Lansing*
1887	Langford, G. W.,	*Williamston*
1886	Manley, A. C.,	*Leslie*
1878	Park, J. B.,	*Okemos*
1881	Post, J. A.,	*Lansing*
1866	‡*Ranney, G. E.,	"
1894	Shumway, F. W.,	*Williamston*
1894	‡Turner, F. N.,	*Webberville*
1894	Weaver, J. B.,	*Lansing*

IOSCO COUNTY.

1896	‡White, John V.,	*Oscoda*

‡ Present. * Ex-President.

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IONIA COUNTY.

Year Joined		Residence
1895	Alton, Robert W.,	*Portland*
1870	‡Barnes, W. L.	"
1894	Conley, W. C.,	*Saranac*
1888	Cope, C. S.,	*Ionia*
1873	Dellenbaugh, C. C.,	*Portland*
1893	Feguson, Jas. E.	*Belding*
1893	‡Pinkham, J. F,	"
1890	Strahan, D. H.,	*Pewamo*

JACKSON COUNTY.

1891	‡Bulson, Albert E.,	*Jackson*
1895	Hubbard, C. D.,	*Parma*
1876	Lewis, C. H,	*Jackson*
1883	Williams, N. H.,	*Jackson*
1876	Main, J. T.,	*Jackson*
1886	Porter, J. A.,	*Brooklyn*
1896	‡Roberts, A. J.,	*Jackson*

KALAMAZOO COUNTY

1889	Bosman, J. W.,	*Kalamazoo*
1889	Edwards, Wm. M.,	"
1890	LaCrone, O. A.,	"
1883	‡McKain, C. H.,	*Vicksburg*
1890	McNair, R.,	*Kalamazoo*
1883	‡Osborne, H. B.,	"
1887	Ostrander, H.,	"
1892	‡Pierce, Della P.,	*Kalamazoo*
1871	*Pratt, Foster,	"
1889	Rockwell, A. H.,	"
1880	Schaberg, H. H.,	"
1883	Snook, J. M.,	"
1878	Van Deusen, E. H.,	"
1888	‡VanZwaluwenburg, C.,	"

KALKASKA COUNTY.

1891	Babcock, Edgar B.,	*Kalkaska*

KENT COUNTY.

1880	Albright, Jos,	*Grand Rapids*
1890	Andrus, Nancy L.,	"
1890	Best, L. E.,	"
1894	Best, McKendra,	"
1890	Bigelow, C. P.,	"
1889	‡Bigham, E,	"
1880	‡*Boise, Eugene,	"
1890	‡Boot, T. A.,	"
1893	Brady, John,	"
1890	‡Burkart, John L.,	"
1890	Burwell, A. G.,	*Byron Center*
1884	Catlin, H. W.,	*Grand Rapids*
1884	Chadwick, H. J.,	"
1890	Dales, O. L.,	"
1866	‡*DeCamp, W. H.,	"
1890	DeVore, J. A.,	"
1890	Droste, C. M.,	"
1890	Earle, Bessie,	"
1889	Edie, J. Orton,	"
1880	‡Fuller, Wm,	"
1888	Graves, S C,	"
1887	‡Greene, D. M.,	*Gr'd Rapids*
1892	‡Green, M. C.,	*Lowell*
1890	Griswold, J. B.,	*Gr'd Rapids*
1884	Groner, F. J.,	"
1883	Hake, W. F.,	"
1889	Hazlewood, A.,	"
1872	‡*Johnson, G. K.,	"
1890	‡Johnston, C. H.,	"
1894	Kelly, C. M.,	"
1893	‡King, Herbert M.,	"
1883	Kirkland, R. J,	"
1890	McColl, J. A.,	"
1890	McPherson, J. A,	"
1893	Patterson, A. J.,	"
1890	‡Peterson, R.,	"
1890	Pressey, A. J.,	"
1884	Pyle, Benj.,	"
1888	‡Roller, L. A.,	"
1889	Rutherford, F. A.,	"
1880	Schurtz, Perry,	"
1895	‡Smith, Mary C.,	"

‡ Present. * Ex-President.

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KENT COUNTY CONTINUED.

Year Joined		Residence
1890	‡Spencer, R. H.,	*Gr'd Rapids*
1889	Strong, E B..	*Byron Center*
1889	Strong, H. W.,	"
1890	‡Wanty, Emma N.,	*G'd Rapids*
1886	Welsh, D. E.,	"
1894	Weston, A. H.,	*Grandville*
1895	‡Whinery, J. B.,	*Gr'd Rapids*
1884	White, C. H ,	"
1890	White, W. H.,	"
1890	Wisse, Isman,	"

LAPEER COUNTY.

1896	‡Conley, E.,	*Columbiaville*
1895	Jones, Geo. W.,	*Imlay City*
1878	‡*McColl, Hugh,	*Lapeer*
1895	‡Price, Adam,	*Almont*
1895	Yerex, D. V.,	*Imlay City*
1895	Stewart, Peter,	*Hadley*
1895	‡Stone, Geo. W.,	*Metamora*
1892	‡Taylor, Jos. H.,	*Lapeer*
1896	‡Tinker, F. A.,	"

LENAWEE COUNTY.

1895	‡Dodge, J. R.,	*Hudson*
1892	Ellis, E. J. C.,	*Clayton*
1876	‡Howell, George,	*Tecumseh*
1886	Hyde, C. C.,	*Addison*
1887	Jenkins, J. F.,	*Tecumseh*
1884	Logue, Mina,	*Adrian*
1883	‡Morden, W. S.,	*Macon*
1878	North, L. G.,	*Tecumseh*
1889	White, Jno. E.,	*Clinton*

LIVINGSTON COUNTY.

1888	‡Austin, A. S.,	*Fowlerville*
1889	Huntington, W. C.,	*Howell*
1878	‡McHench, W J.,	*Brighton*
1878	‡Sigler, F. H ,	*Pinckney*

MACOMB COUNTY.

1888	Beardslee, S. T.,	*Armada*
1888	‡Berry, H.G.,	*Romeo*
1896	‡Burdon, F.L.,	*N'w Baltimore*
1888	‡Chapin, A. B.,	*Mt. Clemens*
1896	‡Croman, Jos. M.,	"
1896	‡Fares, John B ,	*Romeo*
1896	‡Gibson, J. E.,	*New Haven*
1896	‡Gunn, Alexander	"
1888	‡Greenshields, Wm.,	*Romeo*
1888	‡Knight, P. A.,	*Utica*
1885	‡Moore, M. T.,	*Richmond*
1896	‡Roberson, George G.,	*Utica*
1888	‡Shotwell, A. N.,	*Mt. Clemens*
1889	‡Taylor, H. F.,	"
1896	‡Wilson, W D.,	"
1896	‡Warren, A. J.,	"
1882	‡Yates, A.,	*Washington*
1885	‡Yates, J.,	*Roseville*

MANISTEE COUNTY.

1896 ‡Jensen, Paul C., *Manistee*

MARQUETTE COUNTY.

1895. Felch, Theodore A., *Ishpeming*

MASON COUNTY.

1889 Crosby, G. W., *Ludington*

MECOSTA COUNTY.

1891	‡Dodge, Wm. T.,	*Big Rapids*
1890	Griswold, L. S.,	"
1891	Snyder, John,	*Mecosta*
1894	Terrell, F. C.,	*Big Rapids*

‡ Present. * Ex-President.

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MIDLAND COUNTY.

1883	Towsley, F. A.,	*Midland*

MISSAUKEE COUNTY.

Year Joined		Residence
1896	‡Brown, G. V.,	*McBain*
1894	Decker, Jno. W.,	*Lake City*

MONROE COUNTY.

1888	Heath, G. F.,	*Monroe*
1896	‡Knapp, Lewis,	"
1890	‡Root, P. S.,	*Monroe*
1887	‡Southworth, C. T.,	"

MONTCALM COUNTY.

1894	‡Blanchard, F. R.,	*Lakeview*
1896	‡Black, D. K.,	*Greenville*
1894	Sanderson, J. H.,	*Edmore*
1893	Gamber, W. P.,	*Stanton*
1893	‡Morgan, Chas. F.,	*Greenville*

MUSKEGON COUNTY.

1893	Block, S.,	*Muskegon*
1893	Clement, A. B.,	"
1884	Denslow, J. F.,	"
1883	Dobson, Jennie M.,	"
1893	Fries, C. S.,	"
1890	Garber, F. W.,	*Muskegon*
1893	Smart, W. N.,	"
1883	Van der Laan, J.,	"
1886	Williams, G. S.,	"
1886	Williams, O. C.,	"

OAKLAND COUNTY.

1895	Brownell, Wm. S..	*Rochester*
1893	‡Breakey, James F.,	*Pontiac*
1885	Chapman, E. A.,	*Walled Lake*
1892	Chapman, Harvey S ,	*Pontiac*
1885	Christian, E. A..	"
1891	Galbraith, F. B.,	"
1896	‡Goux, Louis J.,	"
1891	‡Gray, M. W.,	"
1892	Guillot, H. C.,	"
1889	Hunter, G. F ,	*Holly*
1881	‡Wilson, J. E.,	*Rochester*
1896	‡Johnston, Robert,	*Milford*
1884	Lathrop, H. K.,	*Royal Oak*
1873	LeBaron, R.,	*Pontiac*
1890	Manly, Ora,	*Davisburg*
1892	Morse, Jason,	*Pontiac*
1893	Neff, I. H.,	"
1885	Raynale, C. M.,	*Birmingham*
1891	‡Riker, Jno. D.,	*Pontiac*
1895	Sutherland, C. J.,	*Clarkston*
1875	‡Wade, D W. C.,	*Holly*

OGEMAW COUNTY.

1890	‡Flynn, E. H.,	*West Branch*

OSCEOLA COUNTY.

1895	Swanton, L.,	*Reed City*

ONTONAGON COUNTY.

1896	‡Gates, W. C.,	*Rockland*

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OTTAWA COUNTY.

Year Joined		Residence
1884	Baert, Daniel,	*Zeeland*
1890	Godfrey, B. B.,	*Holland*
1884	Huizinga, T. G.,	*Zeeland*
1886	‡Kremers, H.,	*Holland*
1877	‡Walkley, W. S.,	*Grand Haven*
1896	‡Yates, O. E.,	*Holland*

ST. CLAIR COUNTY.

1896	‡Abbott, A. J.,	*Emmett*
1896	‡Baird, Robt. B.,	*Marine City*
1894	‡Burtless, W. E.,	*St. Clair*
1889	Eaton, Edwin,	*Port Huron*
1896	‡Farrand, Elizabeth M.,	"
1887	‡Henry, W.G.,	*St. Clair Spr'gs*
1896	‡Howard, S. A.,	*Upton Works*
1896	‡Inches, James W.,	*St. Clair*
1884	Platt, J. S.,	*Port Huron*
1896	‡Schoales, Wm. L.,	*St. Clair*
1885	‡Stockwell, C. B.,	*Port Huron*
1882	*Stockwell, C. M.,	"
1885	‡Todd, G. W.,	*Jeddo*
1885	Wilson, M..	*Port Huron*

ST. JOSEPH COUNTY.

1884	Chivers, W. H.,	*Colon*
1894	Robinson, F. W.,	*Sturgis*

SAGINAW COUNTY.

1891	Alden, Chas. W.,	*Saginaw*
1895	Bailey, O. L.,	*Chesaning*
1890	Barber, O. P.,	*Saginaw*
1879	‡*Bliss, L. W.,	"
1891	Bradt, Chas. M..	*St. Charles*
1892	‡Brooks, Harriet V. B.,	*Saginaw*
1891	‡Connery, Wm. S.,	"
1891	Cornell, Daniel B.,	"
1886	‡Davis, E. W.,	"
1896	‡Dibble, Wealthy,	*Saginaw. E. S.*
1891	Edelmann, F. W.,	*Saginaw*
1886	Eldred, J. N.,	*Chesaning*
1891	Ellis, Chas. W.,	*Saginaw*
1884	Florentine, F. B.,	"
1885	‡Goodman, Celia W. T.,	"
1895	Hudson, J. H.,	*Merrill*
1884	Kitchen, Samuel,	*Saginaw*
1891	McCormick, J. C.,	"
1894	‡McLaren, J. L.,	"
1890	‡Ostrom, S. C. J.,	"
1891	‡Rouse, J. S.,	"
1892	‡Rowe, B. B.,	"
1891	Sample, C. H.,	"
1891	Schemm, Geo. C.,	"
1888	Small, S. I.,	"
1881	Williams, H.,	"
1896	‡Williamson, T. M.,	*Saginaw, E. S.*

SANILAC COUNTY.

1896	‡Banting, W. T.,	*Lexington*
1891	McCrea, Henry,	*Marlette*
1891	Watson, Jas. A.,	*Brown City*

SHIAWASSEE COUNTY.

1892	‡Arnold, A. L.,	*Owosso*
1879	Chrouch, G. W.,	*Shaftsburg*
1892	Cowles, A. G.,	*Durand*
1886	‡Hume, A. M.,	*Owosso*
1886	Hume, W. C.,	*Corunna*
1894	‡Lamb, D. H.,	*Owosso*
1895	‡McCormick, C.,	*Owosso*
1878	Perkins, J.,	"
1887	Phippen, S. S. C.,	"
1895	Scully, M. C.,	*Vernon*
1892	Shoemaker, J. S.,	*New Lothrop*
1869	Ward, E. B.,	*Laingsburg*

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TUSCOLA COUNTY.

Year Joined		Residence
1895	Clark, C. W.,	*Caro*
1895	‡Garvin, Wynne C,	*Millington*
1895	‡Livingstone, P. J.,	*Caro*
1892	Rogers, A. S,,	*Vassar*
1885	‡Seeley, A. L.,	*Mayville*
1891	‡Wright, W. C.,	*Unionville*

VAN BUREN COUNTY.

1884	Baker, C. T.,	*Decatur*
1888	‡Carnes, G. D.,	*South Haven*
1890	Engle, W. A.,	*Hartford*
1889	Vaughan, O. M.,	
1889	Lawrence, Robt. R.,	*Hartford*
1889	Palmer, E. A.,	"
1896	‡Stevens, Samuel	*Keeler*
		Cover

WASHTENAW COUNTY.

1894	Belser, M. L.,	*Ann Arbor*
1876	‡Breakey, W. F.,	"
1885	‡Carrow, Flemming	"
1894	‡Cushny, Arthur,	"
1881	‡Darling, C. G.,	"
1892	‡Dock, George,	"
1888	Dorrance, W. H.,	"
1875	‡Georg, Conrad,	"
1888	Gibbes, Heneage,	"
1876	‡Herdman, W. J.,	"
1888	‡Huber, G C.,	"
1896	‡Hueston, James,	*Ypsilanti*
1894	Hull, G. M.,	"
1890	‡Keating, J. W.,	*Ann Arbor*
1883	Lee, John,	*Dexter*
1893	‡Lombard, W. P.,	*Ann Arbor*
1892	‡Lynds, James G.,	"
1895	‡McClintock, Chas. T.,	"
1888	‡Martin, J. N.,	"
1890	‡Nancrede, C. B.,	"
1894	‡Novy, F. G.,	"
1878	Owen, F. K.,	*Ypsilanti*
1883	‡Palmer, G. W.,	*Chelsea*
1883	Prescott, A. B.,	*Ann Arbor*
1893	Root, Don A.,	"
1894	‡Solis, Jeanne C.,	"
1896	‡Statler, H. O.,	"
1879	Vaughan, V. C.,	"
1886	Wessinger, J. A.,	"
1896	‡Warthen, Aldred S.,	"

WAYNE COUNTY.

1892	‡Anderson, Willis S.,	*Detroit*
1891	Armstrong, O. S.,	"
1873	‡Banks, Gertrude S.,	"
1882	Bennett, E. O.,	*Wayne*
1894	‡Biddle, A. P.,	*Detroit*
1888	‡Bigg, A. H.,	"
1888	Bonning, Carl,	"
1868	Book, J. B.,	"
1888	Brady, M.,	"
1892	Brand, W. J.,	"
1885	‡Brodie, Benj. P.,	"
1894	‡Brown, J. Morris,	"
1866	Brumme, Carl,	"
1891	‡Bryan, Alonzo,	"
1887	Campbell, D. M.,	"
1886	‡Campbell, D. S.,	*Detroit*
1888	Carrier, A. E.,	"
1873	‡Carstens, J. H.,	"
1888	Chapoton, E. A.,	"
1885	‡Chittick, W. R.,	"
1867	*Christian, E. P.,	*Wyandotte*
1888	Clark, G. E.,	*Detroit*
1885	‡Clark, J. E.,	"
1875	Cleland, H. A.,	"
1888	Cleland, James, Jr.,	"
1882	‡Collier, J. M.,	*Plymouth*
1890	‡Collins, A. N.,	*Detroit*
1872	‡Connor, Leartus,	"
1894	‡Cook, Emma D.,	"
1888	Cree, W. J.,	"

‡ Present. * Ex-President.

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WAYNE COUNTY—CONTINUED.

Year Joined		Residence
1892	Dakin, D. L.,	*Detroit*
1887	‡Deuel, Elizabeth L.,	"
1896	‡Dewey, F. N.,	*Plymouth*
1884	‡Donovan, D. O.,	*Detroit*
1887	‡Douglas, Chas.,	"
1885	‡Duffield, George,	"
1867	Duffield, S. P.,	*Dearborn*
1882	‡Emerson, J. E.,	*Detroit*
1895	Fletcher, E. A.,	"
1884	Frank, C. P.,	"
1885	‡*Frothingham, G. E.,	"
1893	‡Frothingham, G. E., Jr.,	"
1884	Gailey, J. K.,	"
1891	Gerry, Harriet A.,	"
1892	Gillman, Robert W.,	"
1894	Hartz, H. J.,	"
1888	‡Hitchcock, C. W.,	"
1895	‡Houghton, E. M.,	"
1884	Hoyt, B. R.,	"
1889	‡Huson, Florence,	"
1888	Imrie, A. W.,	"
1885	‡Inglis, David,	"
1894	Ives, A. W.,	"
1867	‡Jenks, E. W.,	"
1882	‡Jennings, C. G.,	"
1885	Jones, J. R.,	"
1888	‡Judson, H. C.,	"
1879	‡Kiefer, H.,	"
1884	Kirker, G. A.,	"
1866	Klein, Peter,	"
1896	‡Knill, Edwin G.,	"
1888	La Ferte, Daniel,	"
1888	Lau, O. H.,	"
1890	Lee, John,	"
1894	‡Lennox, L. J.,	"
1881	‡Leonard, C. Henry,	"
1888	‡Longyear, H. W.,	"
1867	‡*McGraw, T. A.,	*Detroit*
1892	‡McLean, Angus,	"
1896	‡Maas, F.,	"
1875	‡*Maclean, Donald,	"
1896	‡Macmillan, J. A.,	"
1888	Maire, L. E.,	"
1887	Mann, F. W.,	"
1884	‡Manton, W. P.,	"
1896	‡Marker, John J.,	*Eloise*
1890	Metcalf, W. F.,	*Detroit*
1887	Miner, S. G.,	"
1875	‡Mulheron, J. J.,	"
1894	Murdock, Thos. S.,	*Northville*
1893	‡Odell, R. W.,	*Detroit*
1894	Parker, Dayton,	"
1885	‡Parker, D. L.,	"
1895	‡Parker, Walter R.,	"
1892	Renaud, Geo. L.,	"
1888	‡Robbins, F. W.,	"
1895	‡Schell, Luke E.,	"
1886	Sherrill, E. S.,	"
1875	‡Shurly, E. L.,	"
1888	Skinner, E. C.,	"
1892	‡Smith, Edgar B.,	"
1872	Smith, Eugene,	"
1867	Smith, H. E.,	"
1878	‡Sprague, W. B.,	"
1888	‡Stevens, W. C.,	"
1888	Summers, F. D.,	"
1888	‡Tappey, E. T.,	"
1894	‡Tibbals, F. B.,	"
1892	Troy, E. H.,	*Wayne*
1894	Walker, F. B.,	*Detroit*
1867	‡*Walker, H. O.,	"
1869	Webber, N. W.,	"
1895	‡Winter, J. A.,	"
1879	Wyman, H. C.,	"
1896	‡Zimmerman, S.,	*Wayne*

WEXFORD COUNTY.

1890	McMullen, B. H.,	*Cadillac*
1895	Miller, Carroll E.,	*Cadillac*

‡ Present. * Ex-President.

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Alphabetical List of Active Members.

1896.

NAMES AND RESIDENCES.	
Abbott, A. J	Emmett
Abbot, Frank E	Sterling
Albright, Joseph	Grand Rapids
Alden, Charles W	Saginaw
Allen, G. B	Charlotte
Alton, Robert W	Portland
Alvord, A. W	Battle Creek
Anderson, Willis S	Detroit
Andrus, Nancy L	Grand Rapids
Armstrong, Oscar S	Detroit
Arnold, Alfred L	Owosso
Austin, A. S	Fowlerville
Babcock, Edgar B	Kalkaska
Baert, Daniel	Zeeland
Bailey, O. L	Chesaning
Baird, Robert B	Marine City
Baker, C. H	Bay City
Baker, C. T	Decatur
Baker, Henry B	Lansing
Ballard, L. Anna	Lansing
Banks, Gertrude S	Detroit
Barber, Oliver P	Saginaw
Barnes, Wm. L	Ionia
Banting, W. T	Lexington
Beagle, Luke N	Flint
Beardslee, S. T	Armada
Beers, John S	Derby
Belser, M. L	Ann Arbor
Bennett, E. O	Wayne
Berry, H. G	Romeo
Best, Leonidas E	Grand Rapids
Best, McKendra	Grand Rapids
Biddle, Andrew P	Detroit
Bigelow, Charles P	Grand Rapids
Bigg, A. H	Detroit
Bigham, E	Grand Rapids
Black, D. K	Greenville
Blanchard, Francis R	Lakeview
Bliss, L. W	Saginaw
Block, S	Muskegon
Boise, Eugene	Grand Rapids
Bonning, Carl	Detroit
Book, J. B	Detroit
Boot, Tennis A	Grand Rapids
Bosman, J. Will	Kalamazoo
Bradley, J. B	Eaton Rapids
Bradt, Charles M	St. Charles
Brady, John	Grand Rapids
Brady, M	Detroit
Brand, W. J	Detroit
Baird, Thomas A	Bay City
Brainerd, Ira N	Alma
Breakey, James F	Pontiac
Breakey, Wm. F	Ann Arbor
Briggs, Thomas H	Battle Creek
Bristol, Miles C	Bay City
Brodie, Benjamin P	Detroit
Brooks, Harriet V. B	Saginaw
Brown, G. V	McBain
Brown, J. Morris	Detroit

NAMES AND RESIDENCES.	
Brownell, Wm. S	Rochester
Brumme, Carl	Detroit
Bryan, Alonzo	Detroit
Bryant, Ruth O	Battle Creek
Buckham, James N	Flint
Bulson, Albert E	Jackson
Burdon, Fred N	New Baltimore
Burkart, John L	Grand Rapids
Burr, C. B	Flint
Burtless, W. R	St. Clair
Burwell, A. G	Byron Center
Calkins, Henry T	Petoskey
Callow, F. H	Mt. Morris
Campbell, D. M	Detroit
Campbell, D. S	Detroit
Campbell, F. S	Lansing
Campbell, O. B	Ovid
Carnes, George D	South Haven
Carr, Henrietta A	Eaton Rapids
Carrier, A. E	Detroit
Carrow, Flemming	Ann Arbor
Carstens, J. H	Detroit
Catlin, H. W	Grand Rapids
Caughlin, J. W	Bay City
Chadwick, H. J	Grand Rapids
Chamberlain, G. V	Flint
Chapin, A. B	Mt. Clemens
Chapman, E. A	Walled Lake
Chapman, Harvey S	Pontiac
Chapman, Willis E	Cheboygan
Chapoton, E. A	Detroit
Chittick, W. R	Detroit
Chivers, W. H	Colon
Christian, E. A	Pontiac
Christian, E. P	Wyandotte
Chrouch, George W	Shaftsburg
Clark, C. W	Caro
Clark, George E	Detroit
Clark, J. E	Detroit
Cleland, H. A	Detroit
Cleland, James Jr	Detroit
Clement, A. B	Muskegon
Collier, J. M	Plymouth
Collins, Alva N	Detroit
Conley, E	Columbiaville
Conley, W. C	Saranac
Connery, Wm. S	Saginaw
Connor, Leartus	Detroit
Cook, Emma D	Detroit
Cope, C. S	Ionia
Cornell, David B	Saginaw
Cowles, Ambrose G	Durand
Cree, W. J	Detroit
Croman, Joseph M	Mt. Clemens
Crosby, G. W	Ludington
Culver, Sidney H	Mason
Cushney, Arthur R.	Ann Arbor
Dakin, D. L	Detroit
Dales, Oscar L	Grand Rapids
Darling, C. G	Ann Arbor

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NAMES AND RESIDENCES.

Davis, Eugene W.....Saginaw
DeCamp, W. H.....Grand Rapids
Decker, John W.....Lake City
Dellenbaugh, C. C.....Portland
Denslow, J. F.....Muskegon
Deuel, Elizabeth L.....Detroit
De Vore, Jas. A.....Grand Rapids
Dewey, F. N.....Plymouth
Dibble, Wealthy.....Saginaw, E. S
Dobson, Jennie M.....Muskegon
Dock, George.....Ann Arbor
Dodge, J. R.....Hudson
Dodge, Wm. T.....Big Rapids
Donovan, D. O.....Detroit
Dorrance, W. H.....Ann Arbor
Douglas, Charles.....Detroit
Dowse, C. Louise.....Petoskey
Drake, A. P.....Hastings
Droste, Casper M.....Grand Rapids
Duffield, George.....Detroit
Duffield, S. P.....Dearborn
Dunlap, Harley M.....Battle Creek
Earle, Bessie.....Grand Rapids
Eaton, Edwin.....Port Huron
Edelmann, F. W.....Saginaw
Edie, J. Orton.....Grand Rapids
Edwards, W. M.....Kalamazoo
Eldred, J. N.....Chesaning
Ellis, Chas. W.....Saginaw
Ellis, E. J. C.....Clayton
Emerson, Justin E.....Detroit
Engle, W. A.....Hartford
Erwin, Robert W.....Bay City
Fares, John B.....Romeo
Farrand, Elizabeth M.....Port Huron
Felch, Theodore A.....Ishpeming
Ferguson, James E.....Belding
Fletcher, E. A.....Detroit
Fletcher, F. E.....Lake Linden
Florentine, F. B.....Saginaw
Flynn, E. H.....West Branch
Foote, John R.....Bay City
Fox, Paul S.....Athens
Frank, C. P.....Detroit
French, S. S.....Battle Creek
Fries, C. S.....Muskegon
Frothingham, George E.....Detroit
Frothingham, George E., Jr.....Detroit
Fuller, D. E.....Hastings
Fuller, Wm.....Grand Rapids
Gailey, J. K.....Detroit
Galbraith, F. B.....Pontiac
Gallagher, M.....Bay City
Gamber, W. P.....Stanton
Garber, Frank W.....Muskegon
Gardner, Elmer D.....Davison
Garvin, Wynne C.....Millington
Gates, W. C.....Rockland
Georg, Conrad.....Ann Arbor
Gerry, Harriet A.....Detroit
Gibbes, Heneage.....Ann Arbor
Gibson, James C.....New Haven
Gier, Frank M.....Hillsdale
Gillette, Leon M.....Battle Creek
Gillman, Robert W.....Detroit
Godfrey, Byron B.....Holland
Goodman, C. W. Taylor.....Saginaw
Goux, Louis J.....Pontiac
Graham, H. W.....Mt. Morris
Granger, George H.....Bay City
Graves, S. C.....Grand Rapids
Gray, Mason W.....Pontiac
Green, Mary E.....Charlotte
Greene, D. M.....Grand Rapids
Greene, George H.....Marshall
Greene, J. N.....Leslie
Green, M. C.....Lowell

NAMES AND RESIDENCES.

Greenshields, Wm.....Romeo
Griggs, Arthur.....Standish
Griswold, J. B.....Grand Rapids
Griswold, Leavitt S.....Big Rapids
Groner, F. J.....Grand Rapids
Guillot, H. C.....Pontiac
Gunn, Alexander.....New Haven
Hagadorn, A. D.....Lansing
Hagadorn, A F.....West Bay City
Hake, Wm. F.....Grand Rapids
Hartz, Henry J.....Detroit
Hauxhurst, John W.....West Bay City
Hayden, Charles N.....Lansing
Hazelwood, A.....Grand Rapids
Haze, H. A.....Lansing
Heath, George F.....Monroe
Herdman, W. J.....Ann Arbor
Hitchcock, C. W.....Detroit
Houghton, E. M.....Detroit
Howard, S. A.....Upton Works
Howell, George.....Tecumseh
Hoyt, B. R.....Detroit
Hubbard, C. D.....Parmo
Huber, G. C.....Ann Arbor
Hudson, J. H.....Merrill
Hueston, James.....Ypsilanti
Huizinga, Thomas G.....Zeeland
Hull, G. M.....Ypsilanti
Hull, Tyler.....Dimondale
Hume, A. M.....Owosso
Hume, Wm. C.....Corunna
Hunter, G. F.....Holly
Huntington, W. C.....Howell
Huson, Florence.....Detroit
Hyde, C. C.....Addison
Imrie, Andrew W.....Detroit
Inches, James W.....St. Clair
Inglis, David.....Detroit
Ingram, Aaron R.....Argentine
Ives, A. W.....Detroit
Jenkins, J. F.....Tecumseh
Jenks, E. W.....Detroit
Jennings, C. G.....Detroit
Jensen, Paul C.....Manistee
Johnson, Cornelius A.....Mancelona
Johnson, G. K.....Grand Rapids
Johnston, Collins H.....Grand Rapids
Johnston, Robert.....Milford
Jones, Geo. W.....Imlay City
Jones, John R.....Detroit
Judson, H. C.....Detroit
Keating, John W.....Ann Arbor
Kellogg, J. H.....Battle Creek
Kelly, C. M.....Grand Rapids
Kerr, William.....Bay City
Kiefer, Herman.....Detroit
King, Herbert M.....Grand Rapids
Kinne, Hudson J.....Frankfort
Kirker, Geo. A.....Detroit
Kirkland, R. J.....Grand Rapids
Kitchen, Samuel.....East Saginaw
Klein, Peter.....Detroit
Klingmann, Theo. C.....Bay City
Knapp, Lewis C.....Monroe
Knight, P. A.....Utica
Knill, Edwin G.....Detroit
Kremers, Henry.....Holland
LaCrone, Oliver A.....Kalamazoo
LaFerte, Daniel.....Detroit
Laing, John B.....Otisville
Lamb, D. H.....Owosso
Landon, H. B.....Bay City
Lang, A. B.....Sault Ste. Marie
Langford, Geo. W.....Williamston
Lathrop, Henry K.....Royal Oak
Lau, O. H.....Detroit
Lawrence, Robert R.....Hartford

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NAMES AND RESIDENCES.

LeBaron, R.....Pontiac
Lee, John .....Dexter
Lee, John .....Detroit
Lennox, L. J .....Detroit
Leonard, C Henri .....Detroit
Lewis, C. H.....Jackson
Lindsay, Kate .....Battle Creek
Livingstone, P. J.....Caro
Locy, Lorenzo J.....Davison
Logue, Mina .....Adrian
Lombard, Warren P .....Ann Arbor
Longyear, H. W .....Detroit
Lowry, G. W. .....Hastings
Ludlum, Stephen S .....Harrisville
Lynds, Jas. G.....Ann Arbor
McClintock, Chas. T.....Ann Arbor
McColl, Hugh.....Lapeer
McColl, John A .....Grand Rapids
McCollum, Emma .....Battle Creek
McCormick, C .....Owosso
McCormick, Julius C.....Saginaw
McCrea, Henry.....Marlette
McDonnell, M. C .....Bad Axe
McGraw, T. A.....Detroit
McHench, W. J.....Brighton
McKain, C. H.....Vicksburg
McLaren, J. L.....Saginaw
McLean, Angus. .....Detroit
McLeay, D.....Prairieville
McLurg, John .....Bay City
McMullen, Bartlette H.....Cadillac
McNair, Rush.....Kalamazoo
McPherson, James A.....Grand Rapids
McTavish, Duncan A.....West Bay City
Maas, F.....Detroit
Maclean, Donald.....Detroit
Macmillan, J. A. .....Detroit
Main, F. W.....Jackson
Main, J. T.....Jackson
Maire, L. E.....Detroit
Manly, A. C.....Leslie
Manly, Ora .....Davisburg
Mann, F. W.....Detroit
Manton, W P. .....Detroit
Marker, John J .....Eloise
Marsh, Wm. C.....Quincy
Martin, F. W.....Westphalia
Martin, J. N.....Ann Arbor
Metcalf, Wm. F.....Detroit
Miller, Carroll E.....Cadillac
Miller, Eugene .....Battle Creek
Minar, E. G .....Bay City
Miner, S. G.....Detroit
Moore, Edward E.....Hillsdale
Moore, M. T.....Richmond
Morden, W. S.....Macon
Morgan, Charles F .....Greenville
Morse, Jason.....Pontiac
Mulheron, J. J.....Detroit
Munson, J. D.....Traverse City
Murdock, Thomas S.....Northville
Rancrede, Charles B.....Ann Arbor
Neff, I. H.....Pontiac
Newark, W. E.....Charlotte
Newkirk, C. T.....Bay City
Nichols, G. B.....Martin
Niles, H. R.....Flint
North, L. G.....Tecumseh
Novy, Frederick G.....Ann Arbor
Odell, R. W.....Detroit
Olsen, Alfred B.....Battle Creek
Osborne, H. B.....Kalamazoo
Ostrander, Herman.....Kalamazoo
Ostrom, Sylvester C. J. .....Saginaw
Oven, A. G.....Petoskey
Owen, Frank K.....Ypsilanti
Palmer, E A.....Hartford

NAMES AND RESIDENCES.

Palmer, E. C.....Charlotte
Palmer, George W.....Chelsea
Park, John B .....Okemos
Parker, Dayton .....Detroit
Parker, Delos L.....Detroit
Parker, Walter R.....Detroit
Parmeter, Edward L. .....Albion
Patterson, A. J.....Grand Rapids
Patterson, P. D.....Charlotte
Perkins, Jabez .....Owosso
Peterson, Reuben.....Grand Rapids
Pettyjohn, Elmore S.....Alma
Phippen, S. S. C.....Owosso
Pierce, Della P.....Kalamazoo
Pinkham, J. F .....Belding
Planck, Edgar A .....Union
Platt, Joseph S.....Port Huron
Pollard, John W. .....St. Johns
Porter, J. A. .....Brooklyn
Post, Julius A.....Lansing
Pratt, Foster .....Kalamazoo
Prescott, A. B.....Ann Arbor
Pressey, Austin J .....Grand Rapids
Price, Adam .....Almont
Pyle, Benjamin.....Grand Rapids
Randall, I. E.....West Bay City
Ranney, George E.....Lansing
Raynale, Charles M .....Birmingham
Renaud, George L.....Detroit
Riley, W. H.....Battle Creek
Riker, John D .....Pontiac
Robbins, F. W.....Detroit
Roberts, A. J. .....Jackson
Roberson, George G .....Utica
Robinson, Fred W.....Sturgis
Rockwell, A. H.....Kalamazoo
Rogers, A. S.....Vassar
Roller, L. A.....Grand Rapids
Root, Don A.....Ann Arbor
Root, Philander S.....Monroe
Rouse, Jonathan S.....Saginaw
Rowe, B. B .....Saginaw
Rowe, W. E.....Allegan
Ruggles, F. E. .....Bay City
Rutherford, Frances A.....Grand Rapids
Sample, Chester H.....Saginaw
Sanderson, J. H.....Edmore
Sands, Theodore E.....Battle Creek
Sawyer, Walter H.....Hillsdale
Schaberg, H. H.....Kalamazoo
Schell, Luke E .....Detroit
Schemer, Ernest.....Fowler
Schemm, Geo. C .....Saginaw
Schoales, Wm. L.....Mt Clair
Schurtz, Perry.....Grand Rapids
Seeley, A. L.....Mayville
Scully, M. C.....Vernon
Shellito, Frederick.....Marcellus
Sherrill, Edwin S.....Detroit
Shoemaker, Jacob S.....New Lothrop
Shotwell, A. N.....Mt. Clemens
Shumway, F. W .....Williamston
Shurly, Ernest L .....Detroit
Sigler, F. H.....Pinckney
Simonson, A. B .....Calumet
Skinner, E. C .....Detroit
Small, S. I .....Saginaw
Smart, W. N .....Muskegon
Smith, Edgar B .....Detroit
Smith, Eugene .....Detroit
Smith, Hamilton E.....Detroit
Smith, Mary C .....Grand Rapids
Snook, Jerome M .....Kalamazoo
Snyder, John.....Mecosta
Solis, Jeanne C .....Ann Arbor
Southworth, C. T .....Monroe
Spencer, Ralph H .....Grand Rapids

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NAMES AND RESIDENCES.	
Sprague, W. B	Detroit
Statler, H. O	Ann Arbor
Stealy, A. R	Charlotte
Stevens, Samuel	Keeler
Stevens, W. C	Detroit
Stewart, Peter	Hadley
Stimson, Charles A	Eaton Rapids
Stockwell, C. B	Port Huron
Stockwell, C. M	Port Huron
Stone, D. F	Bay City
Stone, Geo. W	Metamora
Strahan, David H	Pewamo
Strangways, W. F	Flint
Strong, E. B	Byron Center
Strong, H. W	Byron Center
Stuch, L. F	Allegan
Summers, F. D	Detroit
Sutherland, C. J	Clarkston
Sutherland, E. D	Bay City
Suylandt, Charles G	Gladwin
Swaney, H. N	Grand Ledge
Swanton, L	Reed City
Tappey, Ernest T	Detroit
Taylor, H. F	Mt. Clemens
Taylor, James E	Ovid
Taylor, Joseph H	Lapeer
Taylor, Philander B	Clio
Terrell, Franklin C	Big Rapids
Thomason, H. D	Albion
Tibbals, F. B	Detroit
Tibbits, M. A	Linden
Tinker, F. A	Lapeer
Todd, George W	Jeddo
Tompkins, L. D	Cassopolis
Towsley, F. A	Midland
Troy, Edward H	Detroit
Tupper, Horace	Bay City
Turner, F. N	Webberville
Van der Laan, J	Muskegon
Van Deusen, E. H	Kalamazoo
Van Zwaluwenburg, C	Kalamazoo
Vaughan, O. M	Covert
Vaughan, V. C	Ann Arbor
Voorhees, G. V	Coldwater
Wade, D. W. C	Holly
Walkley, W. S	Grand Haven
Walker, Frank B	Detroit
Walker, H. O	Detroit
Walter, Hiram	Eaton Rapids
Wanty, Emma N	Grand Rapids
Ward, E. B	Laingsburg
Warren, Wadsworth	Flint
Warren, A. J	Mt. Clemens
Warthen, Aldred S	Ann Arbor
Watson, James A	Brown City
Weaver, F. A	Charlotte
Weaver, J. B	Lansing
Webber, N. W	Detroit
Weller, Martin	St. Johns
Welsh, D. Emmet	Grand Rapids
Wessinger, J. A	Ann Arbor
Weston, A. H	Grandville
Wheeler, Charles S	Flushing
Whinery, Joseph B	Grand Rapids
White, Clarence H	Grand Rapids
White, John E	Clinton
White, John V	Oscoda
White, M. P	Dowagiac
White, Wm. H	Grand Rapids
Wilbur, C. L	Lansing
Williams, G. S	Muskegon
Williams, H	Saginaw
Williams, Mary A. W	Eaton Rapids
Williams, N. H	Jackson
Williams, O. C	Muskegon
Williamson, T. M	Saginaw, E. S.
Willson, J. C	Flint
Wilson, J. E	Rochester
Wilson, M	Port Huron
Wilson, W. D	Mt. Clemens
Wilson, W. E	Grand Ledge
Winter, J. A	Detroit
Wisse, Isman	Grand Rapids
Wolfe, Franklin E	Grayling
Wood, D. H	Coldwater
Wright, W. C	Unionville
Wyman, H. C	Detroit
Yates, Albert	Washington
Yates, James	Roseville
Yates, O. E	Holland
Yerex, D. V	Imlay City
Young, W. H	Nashville
Zimmerman, S	Wayne

Total number of active members, 521.

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CHANGES IN MEMBERSHIP

DURING THE YEAR TO SEPTEMBER 1, 1896.

DROPPED

FOR NON-PAYMENT OF DUES.

Bates, Noah, Flint.
Bennet, J. E., Plymouth.
Campbell, W. A., Ann Arbor.
Clancy, C. C., Port Huron.
Clark, W. E., St. Ignace.
Cogshall, Bela, Flint.
Crotser, L. S , Edmore.
D'Arcy, Benj., Mayville.
Devendorf, C. A., Detroit.
Eaton, O. P., Detroit.
Edwards, W. F. H., Detroit,
Eves, Wm., Waterford.
Failing, J. F., Grand Rapids.
Flagler, W. F., Imlay City.
Freeman, F. W., East Saginaw.
Gordon, G. G., Flushing.
Green, G. W., Battle Creek.
Handy, J. W., Flint.
Hagler, E. E., Ann Arbor.
Hoyt, E. A., Bay City.
McMeekin, J. W., Saginaw.
Mabbs, J. A., Holland.
Main, F. W., Jackson.
Marshall, Joseph, Gaines.
Matthews, J. D., Gaines.
Merrit, S. W., Fort Gratiot.
Mills, H. R., Port Huron.
Morris, Richard, Vassar.
Nichols, A. W., Greenville.
Phillips, H. H., Vandalia,
Richmond, P. E., Mt. Pleasant.
Rose, G. L., Decatur.
Ward, W. E , Fenton.
Weaver, L. F., Nashville.
Wiggins, O. B., Lawrence.
Williams, John R., White Pigeon.
Wooster, S. R., Grand Rapids.

DROPPED

BECAUSE REMOVED FROM THE STATE.

W. F. Berry, Mt. Clemens to Neillsville, Wis.
Geo. W. Burleigh, Battle Creek to Boulder, Cal.

RESIGNED.

H. C. Fairbank, Flint.
Geo. W. Green, Battle Creek.
Henry Palmer, St. Johns.

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DIED.

Avery, Eunice J., Coldwater.
Forsyth, A. H., Lake View.
Johnson, Levi H., Detroit.
Maasbacher, Charles F., Saginaw.
Noyes, James F., Providence, R. I.
Whalen, M. E., Paw Paw.
Wilkins, Samuel M., Eaton Rapids.

Total number dropped, - - - - -	49
New members, - - - - - -	48
Lost in membership, - - - - -	1
Total active membership Sept. 1, 1896,	521

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In Memoriam.

	Year Elected.	Time of Death.
JAS. B. ABBOTT, Clayton	1889	1890
J. ANDREWS, Paw Paw	1873	1886
EUNICE J. AVERY, Coldwater	1891	1895
S. M. AXFORD, Flint	1866	1874
GEO. BARNES, Kalamazoo	1871	1873
SARAH A. BEARDSLEY, Jonesville	1884	1886
J. H. BEECH, Coldwater	1876	1878
JOHN H. BENNETT, Coldwater	1873	1891
D. W. BERDAN, Cheboygan	1889	1894
Z. E. BLISS, Grand Rapids	1874	1877
E. J. BONINE, Niles	1866	1892
JUDSON BRADLEY, Detroit	1879	1889
*WM. BRODIE, Detroit	1866	1890
FRANK W. BROWN, Detroit	1884	1893
I. E. BROWN, Detroit	1874	1890
I. A. BROWN, Detroit	1868	1882
WM. BROWNELL, Utica	1866	1884
T. R. BUCKHAM, Flint	1888	1891
A. R. CALKINS, Allegan	1871	1873
A. B. CAMPBELL, Mason	1884	1891
J. V. CHAMBERLAIN, Ypsilanti	1881	1886
C. L. CHANDLER, Richmond	1889	1893
H. F. CHEEVER, Ann Arbor	1869	1877
E M. CLARK, Detroit	1869	1871
JAMES M. COOK, Muskegon	1890	1894
M. A. COOK, Riley Center	1888	1892
ALANSON CORNELL, Ionia	1866	1873
*EDWARD COX, Battle Creek	1871	1882
JOHN DAY, Eng., Geelong, Australia	1877	1881
W. DECKER, Mt. Clemens	1878	1881
THOMAS DOLAN, Lansing	1881	1881
E. B. DUNNING, Paw Paw	1890	1894
E. S. DUNSTER, Ann Arbor	1875	1888
D. O. FARRAND, Detroit	1866	1883
LOUIS M. FASQUELLE, St. John	1884	1889
IRA W. FISKE, Kalamazoo	1872	1891
A. H. FORSYTH, Lake View	1890	1895
RUTH A. GARRY, Ypsilanti	1872	1877
V. L. GARRETT, Alaska	1881	1890
JOHN GEORG, Detroit	1885	1888
CALEB B. GILBERT, Detroit	1867	1892
H. M. GREEN, Grand Rapids	1872	1872
STEPHEN A. HAGADORN, Bay City	1879	1881
I. S. HAMILTON, Tecumseh	1874	1891
D. C. HAUXHURST, Battle Creek	1878	1882
S. L. HERRICK, Three Rivers	1868	1875
J. A. HEATON, Detroit	1869	1882
CHAS. HICKS, Plymouth	1882	1885
*HOMER O. HITCHCOCK, Kalamazoo	1870	1878
EDWARD M. HUME, Dearborn	1872	1877
R. C. HUTTON, Detroit	1878	1890
*RICHARD INGLIS, Detroit	1871	1875

*Ex-President.

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In Memoriam.

	Year Elected.	Time of Death.
*J. H. JEROME, Saginaw	1866	1883
LEVI H. JOHNSON, Detroit	1888	1896
D. A. JOY, Marshall	1883	1887
H. L. JOY, Marshall	1883	1892
AUGUSTUS KAISER, Detroit	1873	1894
A. H. KIMBALL, Battle Creek	1887	1894
AMASA F. KINNE, Ypsilanti	1878	1894
ALBERT E. LEETE, Romeo	1866	1878
*C. J. LUNDY, Detroit	1879	1892
HENRY F. LYSTER, Detroit	1866	1894
CHARLES F. MASSBACHER, Saginaw	1891	1896
J. R. McGURK, Capac	1885	1894
NATHAN MITCHELL, Colon	1872	1879
WILLIAM MOTTRAM, Kalamazoo	1871	1891
DWIGHT NIMS, Jackson	1872	1879
JAMES FANNING NOYES, Detroit	1866	1896
*A. B. PALMER, Ann Arbor	1879	1888
GEO. C. PALMER, Flint	1893	1894
GEORGE C. PEASE, Fulton	1883	1895
ZINA PITCHER, Detroit	1864	1871
J. S REEVES, East Tawas	1873	1878
*ABRAM SAGER, Ann Arbor	1866	1877
H. B. SHANK, Lansing	1870	1889
*CHAS. SHEPARD, Grand Rapids	1867	1898
H. P. SMITH, Mackinaw City	1885	1892
E. S. SNOW, Dearborn	1876	1892
CHAS. T. SOUTHWORTH, Monroe	1866	1884
ERASTUS SPAULDING, Grand Rapids	1890	1892
W. D. STEBBINS, Detroit	1867	1888
R. STEPHENSON, Adrian	1875	1890
J. M. SUTHERLAND, Caledonia	1884	1888
F. L. SUTHERLAND, Oscoda	1888	1888
J. W. SWITZER, Montague	1884	1888
HENRY TAYLOR, Mt. Clemens	1885	1889
*J. R. THOMAS, Bay City	1866	1883
A. A. THOMPSON, Flint	1885	1892
GEO. W. TOPPING, DeWitt	1866	1895
C. A. TUCKER, Coldwater	1874	1890
E. TWISS, Union City	1874	1895
C. V. TYLER, Bay City	1866	1889
FRANK WEBB, Alma	1873	1875
M. E. WHALEN, Paw Paw	1890	1895
*A. F. WHALEN, Hillsdale	1874	1890
M. E. WHALEN, Paw Paw	1890	1895
JOHN B. WHITE, Saginaw	1886	1894
O. W. WIGHT, Detroit	1885	1888
SAMUEL M. WILKINS, Eaton Rapids	1875	1895
W. A. S. WILLIAMS, Petoskey	1890	1893
WILLIAM WOOD, Grand Rapids	1890	1895
ELI WOODMAN, Farmington	1879	1892
L. C. WOODMAN, Paw Paw	1877	1883

*Ex-President.

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REGULAR MEDICAL SOCIETIES IN MICHIGAN; LOCAL, COUNTY and DISTRICT, 1896.

Name of the Society	Organized	Active Mem's	Meetings	President	Secretary
1-Northeastern District Med. Society.	1853	55	Semi-annual.	O. Stewart, Pt. Huron	A. J. Abbott, Emmett .....
2-Washtenaw County Med. Society...	1866	30	Quarterly ...	Christian Kapp, Manchester	— Wilcoxon, Ann Arbor....
3-Detroit Academy of Medicine	1869	25	Semi-monthly	W. R. Chittick	Chas. W. Hitchcock.....
4-Cass County Medical Society	1871	17	Semi-annual.	L. D. Tompkins, Cassopolis.	D. A. Link, Cassopolis.. ....
5-Northern Tri-State Med. Ass'n.....	1873	100	Semi-annual.	G. W. McCaskey, Ft. Wayne	H D. Wood, Angola, Ind...
6-Detroit Medical & Library Ass'n ...	1876	180	Weekly	Ernest T. Tappey.....	Willis S. Anderson..... .....
7-Calhoun County Medical Society...	1876	30	Quarterly ...	E. J. Pendell, Marshall....	W. H. Haughey, Battle Creek...
8-Wayne County Medical Society	1876	135	Semi-monthly	E. B. Smith, Detroit.....	Frank S. Hough, Detroit....
9-Grand River Medical Society	1880	20	Quarterly ...	O. E. Yates, Holland.....	B. B. Godfrey, Holland ....
10-Med. Ass'n of Barry & Eaton Co'ties	1882	35	Quarterly ...	Frank A. Weaver, Charlotte	C. A. Stimson, Eaton Rapids
11-Kalamazoo Academy of Medicine...	1883	110	Bi-monthly ..	S. Belknap, Niles.....	A. H. Rockwell, Kalamazoo.
12-Detroit Gynecological Society.....	1884	35	Monthly.....	N. W. Webber	R. A. Newman, Detroit.....
13-Grand Rapids Academy of Medicine	1884	58	Fortnightly ..	Geo. K. Johnson.....	J.B.Whinery, Grand Rapids.
14-Bay County Medical Society.....	1886	35	Monthly.....	J. W. Caughlin.....	William Kerr, Bay City.....
15-Mich. Surgical & Pathological Soc'y.	1891	90	Monthly.....	M. V. Meddaugh, Detroit .	A. D. Holmes, Detroit .....
16-Muskegon Medical Society	1892	19	Bi-monthly ..	George S. Williams.....	A. A. Smith .....
17-Pontiac Medical Society.....	1892	16	Monthly.....	Jason Morse	W. M. McCarroll, Pontiac ..
18-Saginaw County Medical Society...	1893	34	Monthly.....	S. I. Smart, Saginaw.....	B. B. Rowe . .....
19-Grand Rapids Pathological Club ...	1894	4	Monthly.....	Hugo Lupinski	Berry S. Crebs.....
——PRACTICALLY EXTINCT.——					
1-Union Med. Soc'y of Northern Mich.	1875		Last meeting in 1891.		
2-Oakland County Medical Society...	1885				
3-Pere Marquette Medical Society....	1886				
4-Gratiot County Medical Society	1887				
5-Saginaw Valley Medical Club.....	1889				
6-Jackson Academy of Medicine.....	1889				
7-Huron County Medical Society.....	1890		Can get no reply to letters addressed to officers.		
8-Clinton County Medical Society....	1890				
9-Grand Rapids Med. Library Ass,n..	1894				

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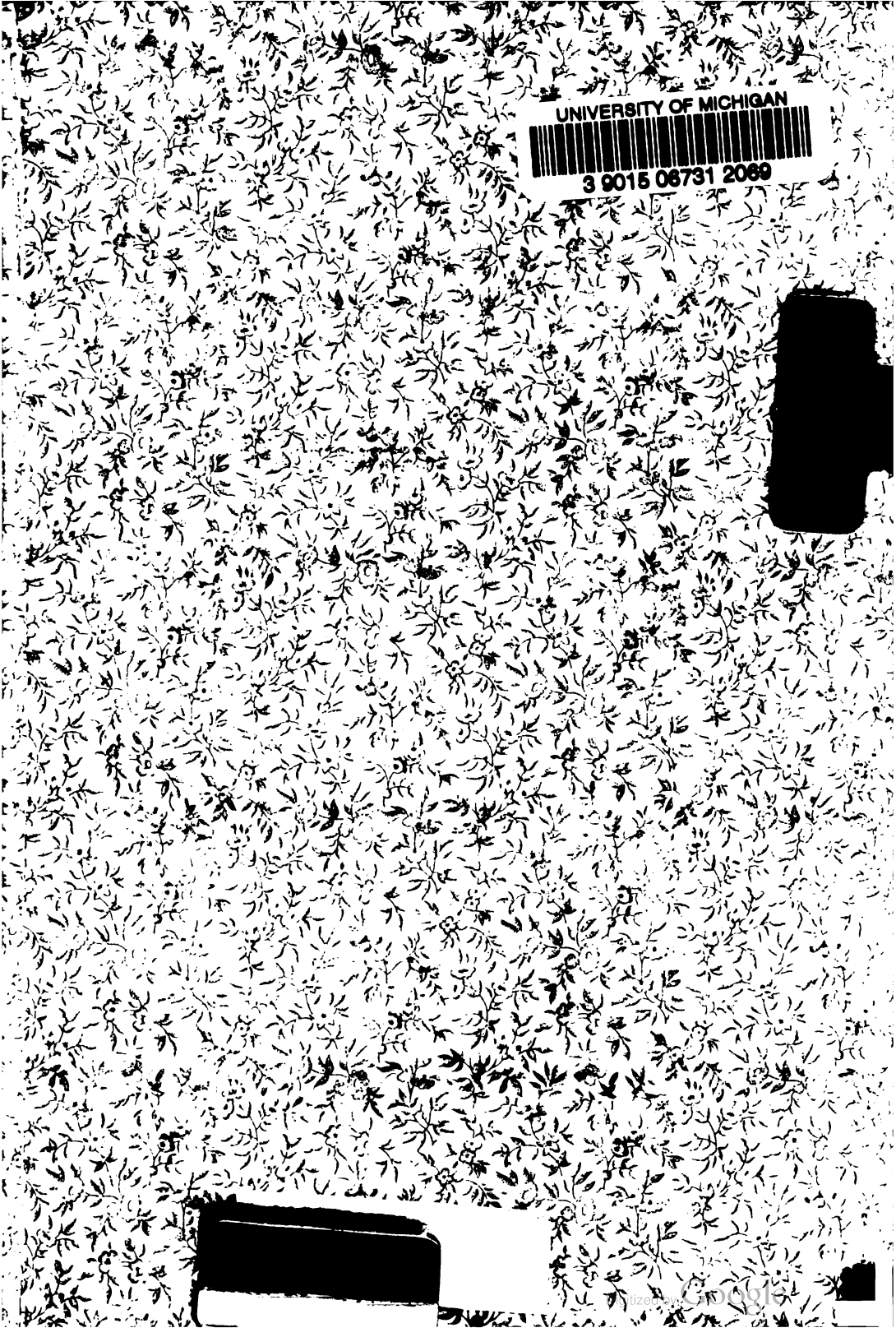

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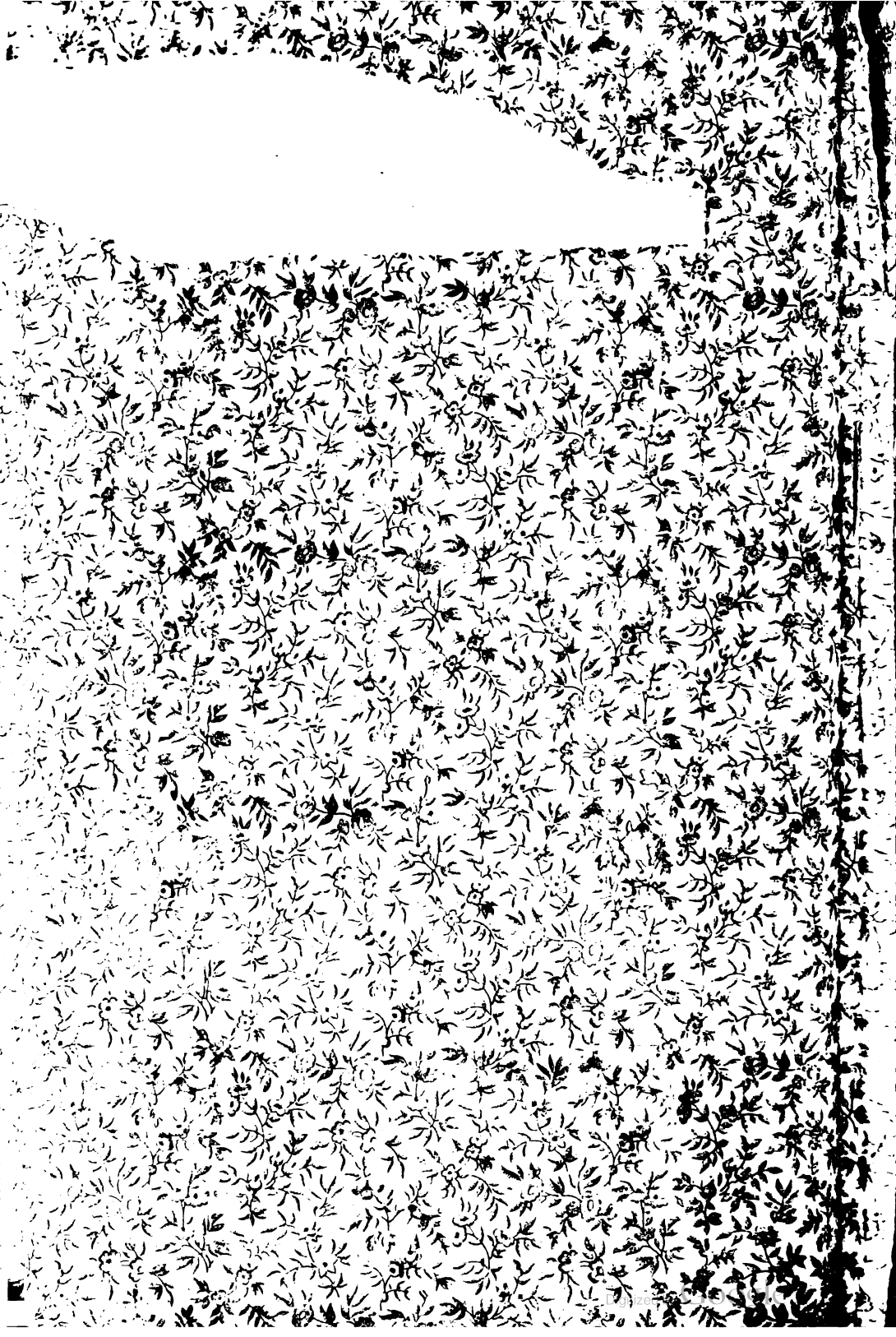

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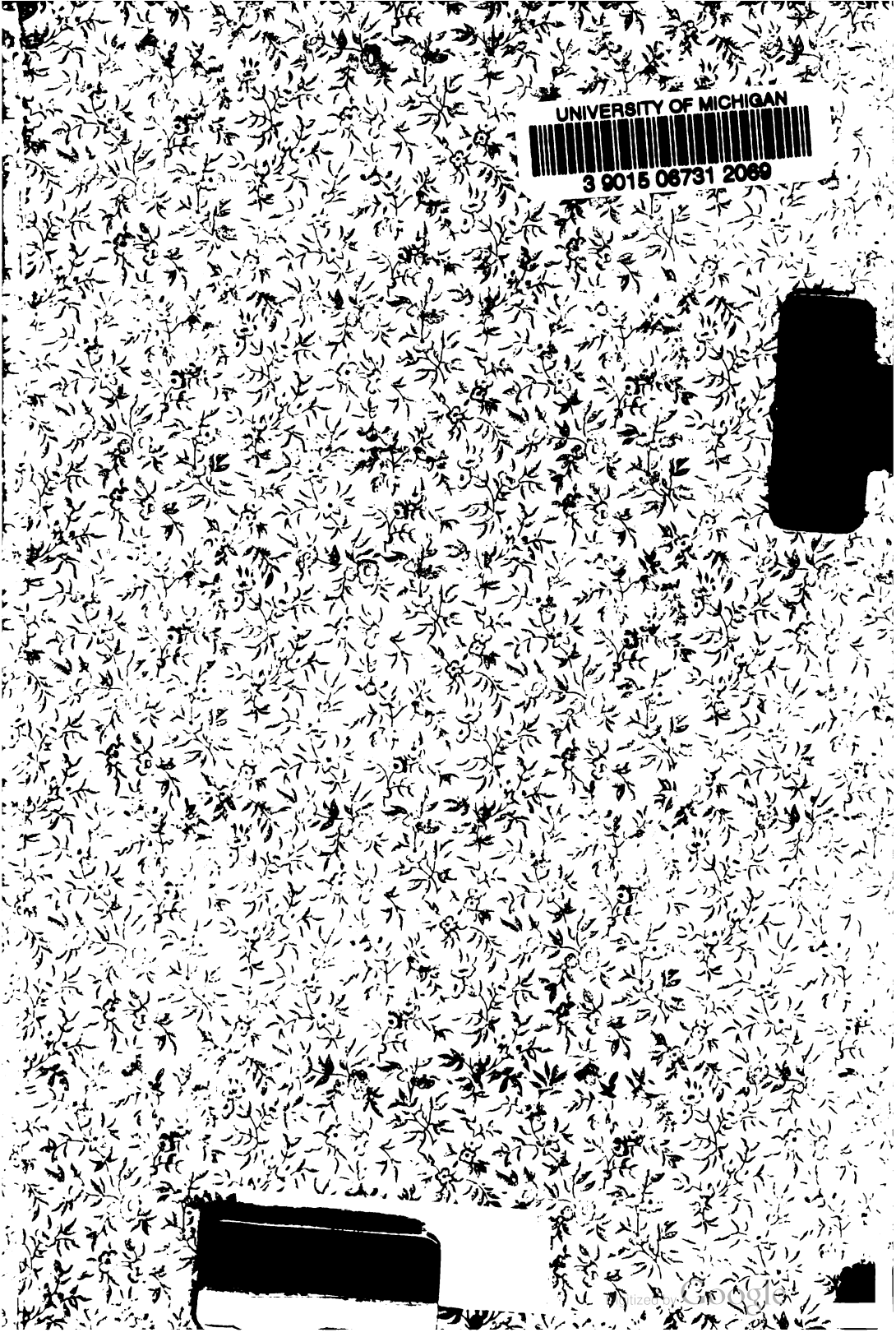

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